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10 June 1980

Worldwide Report

NUCLEAR DEVELOPMENT AND PROLIFERATION

No. 47

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GANDHI COMMENTS ON U.S. URANIUM SUPPLY RENEWAL

Two-Year Dispute Ends

BK091658 Hong Kong AFP in English 1641 GMT 9 May 80

[Text] New Delhi, 9 May (AFP)--Prime Minister Mrs. Indira Gandhi today interpreted U.S. President Jimmy Carter's decision to resume supply of enriched uranium to India as an acceptance of India's importance in the American global strategy.

"So long the Americans had been ignoring us, but now President Carter thinks that it is important to consider our views on global issue and I think that his decision is a projection of this thinking," Mrs. Gandhi told newsmen at Delhi's Plam Airport after arriving from Yugoslav President Marshal Tito's funeral at Belgrade.

President Carter had announced last Wednesday his decision to issue an Executive order for the shipment of 16.8 tonnes of enriched uranium for the west coast Tarapur atomic power station. The U.S. decision came after two years of bitter argument on India's refusal to accept full scale nuclear safeguards.

Mrs. Gandhi said that she was glad that the U.S. was keeping its agreement signed with India in 1963 for continued supply of enriched uranium to Tarapur for 30 years. "We are glad, but we are not sure if and when the uranium will arrive... It has to be passed by the U.S. Congress," Mrs Gandhi said echoing apprehensions expressed by the Foreign Office yesterday that the issue may not have a smooth sailing before the Nuclear Regulatory Commission and the U.S. Congress.

Mrs Gandhi denied that the delayed supply of enriched uranium by the U.S. was the most important irritant between India and the United States. "I do not think there was any irritant as such... Some of the Americans in the State Department had been saying that India did not fit in their global strategy, but now it seems that President Carter thinks that it is important to have India's point of view as well," Mrs Gandhi said.

Questioned if India would like to fit in the U.S. global strategy, Mrs Gandhi said, "It depends what you mean by the global strategy. If you mean that we should blindly follow, then we certainly would not like to fit in anybody's strategy... But a country like India's size and with the role we have been playing since independence, if the U.S. thinks that it can ignore us, then they are not facing the reality of the world," Mrs Gandhi said.

'MELBOURNE AGE' Raps Sale

OW091431 Melbourne Overseas Service in English 0720 GMT 9 May 80

[From Australian editorial opinion program]

[Text] The prospect of the United States providing India with nearly 40 tons of enriched uranium draws critical comment in the editorial columns of today's AGE newspaper. The Carter administration is recommending that the U.S. Nuclear Regulatory Commission approve the sale, and the White House has made known that it is prepared to use executive powers to force through an initial shipment of enriched uranium to India if the Nuclear Regulatory Commission does not accept its recommendation.

The AGE says it seems that Washington's previous insistence on full safeguards and international inspection of all India's nuclear establishments has wilted. The paper points out that just 1 year ago the Carter administration was promoting the idea of a nuclear free zone in southern Asia. Pakistan has agitated for such a zone for years. India opposed the idea saying that it would prevent it from responding to possible nuclear threats from China.

Today, says the AGE, there is no mention of this effort to avert a regional nuclear arms race. American intelligence reports indicated late last year that India was about to begin manufacturing nuclear weapons, and, THE AGE says, Pakistan appears to be on the same course. There is a history of fear, suspicion and even hatred between the two countries which have been to war once already. If they go to war again, says the AGE, it is possible that nuclear weapons will be available to both sides.

The paper says that in the face of such danger the Carter administration's zeal to supply India with enriched uranium is irresponsible and naive. It is to be hoped, says the AGE, that the American Congress will block this example of folly from the United States.

CSO: 5100

JAPAN CONSIDERS SENDING EXPERTS TO STUDY CANADIAN CANDU REACTORS

OW070343 Tokyo KYODO in English 0048 GMT 7 May 80

[Text] Ottawa May 6 KYODO--Japan is considering sending a team of experts to Canada soon to study whether to introduce Canadian Candu atomic power reactors in Japan, sources accompanying Prime Minister Masayoshi Ohira revealed here Tuesday. The question of introducing the Canadian-developed reactor in Japan is the only issue in Japan-Canada trade, pending since August last year when the Japan Atomic Energy Commission (AEC) deferred its decision over a difference of views with the Ministry of Trade and Industry.

In talks with Foreign Minister Saburo Okita here Monday, Canadian External Affairs Minister Mark MacGuigan raised the issue, reaffirming Canada's strong interest in exporting the heavy-water type reactors to Japan. It appeared certain that the issue would be raised during the second round of talks between Ohira and Canadian Prime Minister Pierre Trudeau in Vancouver Tuesday, the sources said.

Candu is a heavy-water cooled reactor which uses natural uranium and has about an 80 per cent operating efficiency, compared with around 60 per cent for ordinary light-water reactors which require enriched uranium. Since 1967 MITI [Ministry of International Trade and Industry] has advocated the introduction of the Candu reactor which, it believes, would reduce Japan's dependency on U.S. enriched uranium and provide a practical stopgap until the present light-water reactors will be replaced by fast breeder reactors using plutonium.

However, AEC deferred a decision on the matter for a number of reasons. One was the necessity, underlined by the U.S. Three Mile Island incident, to establish and consolidate independent expertise in nuclear power technology, including safety, the AEC claimed. Another was the fact that Japan is developing its own advanced thermal converter reactor, also a heavy-water type. AEC argues that from the viewpoint of capital efficiency, all available resources, including manpower, should be concentrated on this development. A third problem raised by the AEC is the need in [words indistinct] earthquake-proof construction.

In view of trade relations with Canada, however, AEC does not entirely rule out introducing the Canadian reactors. The sources said a team of experts from MITI and the Science and Technology Agency would study the safety of the Candu reactor, costs of import and the possibility of earthquake-proof construction.

CSO: 5100

BRIEFS

CHINA INFORMS AUSTRALIA OF LAUNCH--Canberra, May 8 (AFP)--A Chinese nuclear delivery rocket is to be fired into the South Pacific Ocean. Chinese Vice-Premier Li Xiannian informed the Australian prime minister, Mr Malcolm Fraser, of this during private talks here this week. Official Australian sources told AFP tonight that Mr Li, the third-ranking Chinese Government leader, told Mr Fraser that China would be informing the states in the region of the proposed test launching of the long-range delivery rocket. It is understood that the rocket will splash down in the Kiribati, Tuvalu, Solomon Islands region of Micronesia. According to the Australian sources, China will be making an official announcement "in due course" to enable shipping to take appropriate action. No date has been given for the firing of the device. [Excerpt] [OW081103 Hong Kong AFP in English 1058 GMT 8 May 80]

AUSTRALIAN PACT WITH FRANCE--The special trade minister, Senator Scott, says he is hopeful that a nuclear safeguards agreement will be signed with the French Government to allow the export of Australian uranium to France. Senator Scott said in Paris that negotiations were well under way with further talks scheduled for July and there was a strong possibility that France would become involved with Australian uranium. The minister has held talks with the French industry and finance ministers and [the] Atomic Energy Commission. [Text] [OW091433 Melbourne Overseas Service in English 1130 GMT 9 May 80]

FRENCH AID TO SRI LANKA--Colombo, April 11. France has signed an agreement with Sri Lanka for the use of nuclear techniques for peaceful purposes. The French Minister of Economy, Mr Rene Monory, signed the agreement here yesterday on behalf of his Government while Mr Cyril Mathew, Sri Lanka's Minister of Industries and Scientific Affairs, affixed his signature on behalf of his country. The agreement provides for cooperation between the two countries on the peaceful use "of nuclear energy and development of nuclear techniques for peaceful purposes and exchange of technical know-how." A spokesman of the Sri Lanka Atomic Energy Authority told pressmen that the "umbrella agreement" was a forerunner to a series of other agreements to be negotiated by the two countries.--PTI. [Text] [Madras THE HINDU in English 12 Apr 80 p 6]

CSO: 5100

BRIEFS

AUSTRALIAN URANIUM TO PHILIPPINES--Australia is expected to be the long-term supplier of uranium for a nuclear reactor which the United States has agreed to sell to the Philippines. Radio Australia's correspondent in Singapore, Peter Munkton, says the Philippines last year became one of the first countries to sign a uranium safeguards agreement with Australia. He says this cleared the way for Australian uranium to be used at the complex sited at Bataan, near Manila, which will be Southeast Asia's first nuclear powerplant. Our correspondent says the plant is likely to consume about 150 tons of fuel each year. Environmentalists are appealing against the decision by the American Nuclear Regulatory Commission to allow export to the Philippines of the reactor and other nuclear material. They claim the complex is sited in a dangerous, volcanically active region. [Text] [OW071624 Melbourne Overseas Service in English 1130 GMT 7 May 80]

CSO: 5100

TWO NEW BOOKS EXAMINE INDIA'S NUCLEAR OPTIONS

Bombay THE TIMES OF INDIA in English 13 Apr 80 p 12

[Text] Policymakers in India will be called upon to face very challenging tasks in domestic and foreign affairs in the 80's.

To meet these challenges, it will be necessary to evaluate the domestic and foreign policies followed by the country during the last 32 years.

A critical evaluation of past policies becomes a basis for future planning by policymakers. Shyam Bhatia and R.S. Arora, by their critical commentaries on domestic and foreign policies of India have contributed to some extent to the clarification of questions of public policy.

Shyam Bhatia has focussed his attention on the evaluation of India's nuclear policy.* A working journalist, he has written a serious commentary on a critical problem by collecting relevant material relating to nuclear policymaking in India.

Bhatia surveys India's nuclear policy under Nehru, Shastri and Mrs Gandhi, and concludes it with an account of the explosion by Indian Scientists of a 15 kiloton plutonium device for "peaceful purposes" on May 18, 1974 at Pokharan. Post-Pokharan developments in nuclear technology have been quite critical because India has been pressurised to abandon its policy of independent nuclear development.

Nehru believed that India needs nuclear technology for peaceful purposes and not for war. Nuclear bombs do not bring peace, but nuclear energy can bring economic prosperity. India needs all the energy resources, including nuclear, which should be developed. Nehru encouraged nuclear scientists like Homi Bhabha to go ahead with research on "Atoms for Peace." The establishment of the Atomic Energy Commission and the nuclear reactor at Trombay with Nehru's guidance were steps towards the development of nuclear technology in India.

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*"India's Nuclear Bomb" by Shyam Bhatia (Vikas, Rs. 45)

India's border war with China in 1962, and the explosion of a nuclear bomb by the Chinese in 1964 had a fall-out effect on the Indian leadership who were asked by members of parliament to prepare themselves for the new threat of nuclear bombs. Lal Bahadur Shastri was asked to make a policy statement, and he also told MPs on November 23, 1964 that the government would continue to develop nuclear energy for peaceful purposes. When, ten years after the Chinese explosion, India detonated a plutonium device in May 1974, it attracted worldwide comments.

The great merit of Bhatia's book lies in relating nuclear policy with domestic politics and economic priorities of the country. The author traces the background of India's foreign and defence policies, and four phases of the development of India's thinking on nuclear policy i.e. the formative years of 1960-62, the impact of Chinese policy of 1962-64, and preparation for the first explosion of 1974. The book clearly reveals that policy-making in India is a cooperative effort of the political leadership, professional bureaucracy and technically trained scientists, but the ultimate decides rest with the political leadership. Bhatia brings out the complementary roles of Nehru, Bhabha, Mrs Gandhi, Sethna and Ramanna.

The author has done well to link domestic compulsions with foreign and defence policies, but he has not devoted sufficient attention to the role of world monopolists of nuclear power who would not like Third World countries to develop independent nuclear technology for peaceful purposes. The International Atomic Energy Agency has been interested in enforcing an international safeguard system, which is essentially discriminatory against developing countries.

Bhatia needs to be congratulated for writing a very readable book on a topic of great importance. Besides Bhatia, Ashok Kapur is the only other author who has written an exhaustive and scholarly book, "India's Nuclear Option" on this subject.

In the 80's the pursuit of India's nuclear policy would have to be watched with great interest, and initiatives by the new government would attract world public opinion. The powerful countries, which have a monopoly over nuclear bombs, do not accept that nuclear development can be used for peaceful purposes. India will have to carry conviction with the outside world or go ahead on its own. The choice is clear. After missing out on the scientific developments of the last two centuries can we afford to miss new opportunities in scientific advancement? The moral of Bhatia's book is: go ahead with nuclear energy for peace.

Arora's book* is complementary to Bhatia's in more than one way. In his six chapters on various aspects of Indian politics, Arora devotes one full chapter to foreign policy and defence. This main objective in writing an agenda for the Seventh Lok Sabha is to provide guidelines for the future. He has scrutinised the socialist pattern of society, the role of the public sector, industrial policy resolutions, and land reforms in India.

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* "Fundamental Issues for the Seventh Lok Sabha" by R.S. Arora (Institute for the Study of International Relations, New Delhi, Rs. 65)

Arora is quite dissatisfied with the programmes for the eradication of poverty in India, and he finds a serious tension between the right to private property and the creation of a socialist society. The author discusses the role of the Supreme Court in defending private property and brings out conflicts between the fundamental rights and directive principles as enshrined in our Constitution.

Arora's yardstick in evaluating industrial policy resolutions and the public sector is based on his belief in the socialist pattern, and he offers suggestions for achieving socialism in India. He focussed on the role of the sixth Lok Sabha, the industrial policy for the eighties, the role of the Supreme Court, Parliament and the right to property. Arora observes:

"Inspite of forty-four constitutional amendments involving over 230 articles of the Constitution, efforts in pursuit of an egalitarian socialistic society as envisaged in the Constitution have been frustrated."

And for this he blames the Indian judiciary. He observes: "It is most unfortunate that the legislature and the judiciary have adopted a somewhat hostile attitude towards each other."

Arora's main concern is redefinition of goals for the future. He observes:

"The agenda of the Seventh Lok Sabha is expected to redefine clearly the role of the public sector, for this it should be essential to identify long-term economic goals of the nation; to evolve a viable strategy in pursuit of these goals; and then to define the role of the public sector within the larger economic policy framework."

While Arora is prescriptive in his treatment, Shyam Bhatia is analytical and clinical. After stating that "in terms of regional politics, the May test had a lasting psychological impact on Pakistan," Bhatia asks the question: how will India react to Pakistan's nuclear ambitions? Arora is enthusiastic in offering suggestions, and Bhatia is restrained in attitude.

One serious omission in Bhatia's study is lack of an in-depth analysis of the Nuclear Non-Proliferation Treaty. The real intentions of the Nuclear Club and constraints of India's nuclear development programme are revealed if one analyses the genesis and motives behind Nuclear Non-Proliferation Treaty which is being sold by the developed countries of the world.

[illegible] 1180

BRIEFS

TELLURIUM PRODUCTION BEGINS--New Delhi, April 10: India has started producing tellurium for use by the department of atomic energy. The country's total annual requirement of 300 kilos of this metal was so far being met through imports. For the first time 200 kg of tellurium produced at the copper complex unit of Hindustan Copper Ltd at Ghatsila in Bihar has been supplied to the department. This department will produce from it high purity tellurium at the nuclear fuel complex of the Bhabha Atomic Research Centre. The capacity of Ghatsila pilot plant is 20 kg of tellurium per month. The plant was designed by HCL's own engineers and its equipment is wholly indigenous. The HCL is now planning to set up a plant to produce 1.5 tonnes of crude tellurium per year. The preparation of a feasibility report of the plant is already in hand. [Text] [Bombay THE TIMES OF INDIA in English 11 Apr 80 p 7]

CSO: 5100

NEW URANIUM DEPOSITS DISCOVERED IN OKCHON

Seoul THE KOREA TIMES in English 9 May 80 p 7

[Text] The country had reserves of 31,050,000 tons of uranium at last year's end to help fuel the burgeoning nuclear energy industry.

The deposit will enable the resources-poor nation to produce some 7,500 tons of refined uranium.

The Resources Development Research Institute revealed this in its "1979 Annual Report" which was published recently.

By conducting geological surveys and drilling last year the institute has found new uranium deposits estimated at 10,700,000 tons in Okchon, Chungchong-namdo, according to the report.

The newly found deposits represent nearly half of 20,350,000 tons proven to be buried under the adjacent area.

The research body, brain trust of the Energy-Resources Ministry, said uranium reserves had been confirmed in Kapyong in Kyonggi-do, Chin-chon in Chungchong-pukto and Pyonghae in Kyongsang-pukto.

In the report, the institute said one-seventh of the nation's territory had the possibility of uranium reserves.

It revealed that the government would finish full-scale surveys of the areas by the end of 1986, the target year of the fifth five-year economic development plan.

The institute completed daily test production of one ton last year to collect data for establishing basic plans to construct a uranium refinery and to analyze uranium tapping.

A high-ranking official of the institute pointed out that the nation urgently needed diversification of sources of fossil fuel including oil.

The nation calls for the construction of nuclear power plants to solve the everworsening energy problem, he accented.

At present, one nuclear power station is in operation and six others are under construction. The government plans to build a total of 40 nuclear power plants by the end of this century.

Under the nuclear power program, the nuclear plants will help the country meet 34.2 percent of the total electricity demand by 1991.

He said that the new deposits would be a turning point for this country in securing nuclear fuel.

CSO: 5100

LAW ON NUCLEAR ENERGY PUBLISHED

Budapest MAGYAR KOZLONY in Hungarian 5 Apr 80, pp 293-301

[Law No 1 of 1980 on Nuclear Energy]

[Text] Nuclear energy may be widely, efficiently and economically used to satisfy the needs of the society. Nuclear energy is employed systematically in many areas of industry, agriculture, health protection and scientific research. Nuclear energy is being applied to an ever increasing extent within the Hungarian People's Republic also, and it acquires an important role in ensuring the energy supply of the country.

However, nuclear energy may be also used as a weapon of mass destruction. The Hungarian People's Republic is doing everything that it can to stop the nuclear armament race and to ensure that efficient steps are taken in nuclear disarmament. Therefore, in our country, nuclear energy is to be used exclusively for peaceful purposes.

However, the peaceful application of nuclear energy could also present risks, and its incorrect utilization could harm the health and the human environment. The safe application of nuclear energy--in addition to technical measures--requires exceptionally well organized and executed effort, which must be supported by suitable regulations.

For this purpose, the National Assembly promulgates the following law:

Chapter 1

General Dispositions

§ 1. (1) The law covers activities related to the application of nuclear energy.

(2) The following are considered as activities related to the application of nuclear energy in the sense of the law;

(a) Possession, preparation, production, storage, packaging, transportation, utilization, transformation, putting in circulation, removal and disposition (burial) of nuclear materials and radioactive materials;

(b) designing, construction, creation, operation, transformation, repair, stoppage, of an equipment or device, serving the above-listed activities and also

(c) design, preparation, operation, transformation and stoppage of an equipment or device which generates ionizing radiation

(further on, altogether: application of nuclear energy).

(3) Application of radioactive materials and of equipment and devices, which--in view of the nature and extent of the ionizing radiation created by them--do not present a risk to human life and health and for the human environment, is not considered an application of nuclear energy in the sense of the law. Their extent is determined by legal regulations.

Par 2. In view of obligations assumed in international agreements, it is forbidden to use nuclear energy in the Hungarian People's Republic for the purposes of making nuclear weapons or other means of mass destruction.

Par 3. In the Hungarian People's Republic, the application of nuclear energy and the related scientific research and development, serves the interest of the society as a whole. These activities should be carried out in agreement with the socio- and economico-political goals and the scheduled national economic plan.

Par 4. If no exceptions are made by legal regulations, the materials, establishments, experiments and devices within the scope of application of nuclear energy, are societal property. Trade with them is the monopoly of the state, carried out by means of designated organs.

Par 5. (1) Nuclear energy may be applied only in such a way that it does not harm human life, the health and conditions of life of present and future generations, the human environment and material goods.

(2) Nuclear energy may be applied exclusively in a manner indicated in the legal regulation and under the systematic control of the state.

(3) Steps must be taken by the public authorities to ensure that application of nuclear energy satisfies the legal regulations and the safety, radiation protection and environmental protection requirements.

(4) Administration of the tasks of the public authorities does not affect the direct responsibility of the exploiter of nuclear energy.

Par 6. The application of nuclear energy, the resolution of research and development tasks must be promoted by the development of science and technology, the coordinated organization of research work, the pratical application of the results of scientific investigations within the country and abroad, and the training and continued education of specialists.

Par 7. Steps should be taken to acquaint the citizens with the basic scientific, technical and other knowledge related to the application of nuclear energy, by means of education, public instruction and information.

Par 8. The Hungarian People's Republic promotes the application of nuclear energy for peaceful purposes also by collaborating with other countries within the framework of international agreements.

Chapter II

Safety of the Application of Nuclear Energy

Par 9. The safety requirements related to the application of nuclear energy must be determined by legal regulations, safety regulations, and state standards under consideration of scientific results and international experience; the regulations of standards must be continuously updated, as required by the advancement of science and technology.

Par 10. (1) In the course of the application of nuclear energy, it must be ensured that:

(a) no uncontrollable and unmanageable nuclear chain reaction is created;

(b) neither the workers employed in connection with the application of nuclear energy, nor the population at large, nor the environment and material goods, are harmed by radiation or by any other cause.

(2) The annual radiation burden from all sources of the workers employed within the framework of the application of nuclear energy and of the population at large, must not exceed the dose limit that is admissible by the pertinent regulation, under consideration of the up-to-date results of science, keeping in mind the recommendations of international and domestic expert organizations. In agreement with this, the establishments presenting radiation risks, must suitably regulate the maximum amounts and concentrations and the methods of release of radioactive materials that they release into the environment.

(3) The establishments serving the purposes of the application of nuclear energy must be so designed that any operational breakdown be anticipated in the planning and the radioactive material which is released because of an accident or other exceptional event, be suitably restricted to a location. A special dose limit must be established for these events.

(4) Within the permissible dose limits, the radiation burden should be reduced to the lowest level that can be reasonably reached.

Par 11. (1) The exploiters of nuclear energy--in the course of their activity, are obligated to control continuously the radiation conditions. The exploiter must take immediate steps to carry out measures if

(a) the level of ionizing radiation affecting the workers employed within the scope of the application of nuclear energy, or the population at large,

(b) the level of contamination by radioactive material,

(c) the amount of radioactive material released into the environment exceeds the permissible level.

(2) The exploiter of nuclear energy is obligated to take steps concerning the execution of legal regulations, safety regulations, state standards, and instructions of public authorities; the workers employed within the scope of the application of nuclear energy are obligated to follow them, and to enforce their observation by people working under their supervision.

Par 12. (1) The ground area at the location of an establishment or equipment used for the application of nuclear energy--including also its subsurface area--and the air space, may be designated as a safety zone.

(2) Within the safety zone, it is permissible to decree interdiction of rezoning or construction, and to restrict the utilization of land.

(3) The rules concerning the designation of the safety zone, and the interdictions and limitations indicated in subparagraph (2), will be contained in special legal regulations.

(4) If the interdiction or limitation ordered within the safety zone, hinders or significantly interferes with the designated utilization of the real estate, furthermore, if the safe use of the equipment installed within the safety zone and serving the purposes of the application of nuclear energy renders this necessary, the area in question must be expropriated, respectively, trusteeship rights must be acquired. The owner trustee (user) may request the expropriation or the transfer of the trusteeship right from the competent authority.

Par 13. For reasons of radiation protection or safety, the public authorities may issue an order to ensure the safety of persons, to restrict or forbid the use of areas and real estate, to tear down, transform, remodel, buildings or other structures, to forbid the use and circulation of material goods, furthermore, to anihilate them.

Par 14. A nuclear power plant may be established on the basis of a decree of the Council of Ministers.

Par 15. (1) A license from the public authorities is required:

(a) for the creation of a nuclear establishment, furthermore for the establishment's start-up and continuing operation, transformation and shutdown of installation and equipment for the preparation, production, storage, utilization, transformation or placement of radioactive materials,

(b) for the disposal of radioactive materials and wastes,

(c) for the fabrication, operation and transformation of equipment which generates ionizing radiation.

(2) The legal regulations may also require a license for carrying out other activities related to the application of nuclear energy.

Par 16. No license is to be issued for establishment, operation or transformation, if no provisions are made about the safe disposal of the radioactive wastes generated by the establishment or the equipment.

Par 17. (1) The license may be issued for a defined or indefinite period or for a single activity.

(2) The license related to the application of nuclear energy does not serve as a substitute for the licenses required by other legal regulations.

(3) The license must be repealed if,

(a) the instructions prescribed in the legal regulations, safety and other rules, respectively in the license, concerning the application of nuclear energy, are not kept;

(b) the conditions involving the safety of the operation have changed after issuance of the license, or

(c) the safety requirements otherwise demand it

and the safety of the activity cannot be ensured by other means.

Par 18. (1) The licensing authority, and other state agencies empowered to check compliance with the licensing instructions, and the safety of the application of nuclear energy, are obligated to exercise systematic control to ascertain that the prescriptions of the license are being followed, respectively that the safety of the application of nuclear energy is being ensured, and they must immediately take or initiate steps to stop any of the observed irregularities.

(2) The competent government agency entitled to carry out the control, operates during the control on the basis of its jurisdictional authority.

(3) A record must be kept about the licenses and the results of the control operations.

Par 19. (1) A central record must be kept about nuclear materials and radioactive materials, including radioactive wastes.

(2) The regulations concerning the recording of nuclear materials and radioactive materials are stated in a special legal regulation.

Chapter III

Responsibility and reparations related to the application of nuclear energy

Par 20. (1) The exploiter of nuclear energy is obligated to indemnify for damages occurring during the operation of a nuclear establishment, and the transportation of nuclear material--involving radiation or radioactive contamination--due to a breakdown or another exceptional event (nuclear reparations).

(2) In the case of nuclear reparations, there is no escape from responsibility. Damages resulting from the deliberate criminal action of the party suffering the damage do not have to be compensated for.

(3) If the person suffering the damage is a foreign individual, nuclear reparations are applied only on the basis of an international treaty, respectively reciprocity.

(4) In the case of nuclear reparation, the exclusion or limitation of the responsibility is invalid.

Par 21. (1) The state guarantees the nuclear reparations. The mode and extent of nuclear reparations follow the regulations of the Civil Code concerning indemnifications,

(2) The demand concerning nuclear reparations is forfeited in ten years.

Par 22. If nuclear reparations are not applicable, the damages caused to third parties in connection with the application of nuclear energy must be indemnified according to the regulations of the Civil Code concerning the responsibility for activities involving increased risks.

Par 23. Compensation for the damage defined in the Pars 20 and 22 may be claimed from an agency designated by the Council of Ministers.

Par 24. (1) Damage due to prohibitions and restrictions ordered in the safety zone or caused by the installation of equipment, furthermore, by the works carried out in the safety zone, must be reimbursed on the basis of the regulations concerning appropriation.

(2) Damages resulting from the instructions decreed by the legal authorities as described in Par 13, must be compensated as far as real estate is concerned, under application of the pertinent legal regulation about expropriations; otherwise, on the basis of the regulations of the Civil Code concerning indemnifications.

Par 25. (1) In case of the violation of the duties prescribed by the law, respectively in other legal regulations concerning the application of nuclear energy, the instruction of the law concerning responsibility, furthermore, other legal consequences of state administrative law, labor law, and criminal law, must be applied.

(2) Violation of the same responsibility may imply the application of several legal consequences.

Chapter VI

Mixed and promulgating instructions

Par 26. The Council of Ministers will provide for the direction, control and planned development of the application of nuclear energy,

Par 27. This law will enter in force on June 1, 1980, and its execution will be the duty of the Council of Ministers.

Signed: Pal Losonczi	Imre Katona
Chairman, Presidential Council of the Hungarian People's Republic	Secretary, Presidential Council of the Hungarian People's Republic

Justification of the Bill concerning nuclear energy.

General Justification.

1. Application of nuclear energy--because of its inherent characteristics is playing an ever-increasing role in satisfying the requirements of society.

The growth of the production sources demand increasing amounts of energy. In addition to the consumption of the conventional energy carriers--coal, oil and natural gas--the utilization of nuclear energy for the purposes of energy generation is becoming increasingly important. This is the reason for the construction of the first domestic nuclear power plant at Paks, which by 1985, will contribute an amount of 1760 MW to the energy supply of the country. The radioactive isotopes have already been widely used for a long time in the field of public health, in industry and agriculture. Our results in the field of nuclear physics research received international recognition.

2. Nuclear energy may be used also as an exceptionally dangerous weapon of mass destruction. This possibility started an epoch-making process in

armament, presenting dangers for all of humanity. Following up its policy to stop the nuclear armament race, and to promote the nuclear disarmament, the Presidential Council of the Hungarian People's Republic published in 1970, the international treaty on the nonproliferation of nuclear weapons, and the agreement based on it concerning the application of safeguards. However, the importance of the question justifies the fact that the National Assembly proclaims in a law: in our country, the application of nuclear energy can be used exclusively for peaceful purposes only.

3. Even the peaceful application of nuclear energy may present risks; however, these risks may be minimized if suitable safety measures are taken. Therefore, one of the fundamental questions of the application of nuclear energy is safety, i.e., ensuring that the people employed within the scope of the application of nuclear energy, the population at large, and the human environment, will not be exposed to any danger.

Realization of the safety requirements requires the application of scientific, technological, public-health, environmental protection and other measures at all stages of the application (manufacturing, storage, transportation, utilization, etc.). They are correlated with the regulations concerning ownership, utilization, circulation, management and control. For this reason, the peaceful application of nuclear energy must be furthered by legal regulations.

4. The legal regulations pertaining to the application of nuclear energy have been promulgated at an earlier time period when we possessed only primitive--mostly experimental--results. As the regulations were modified, it was not always possible to ensure the needed agreement of the contents and their sufficient modernization. The results obtained up to now and the experience gained while carrying out the tasks, made it possible and necessary to provide a coherent unified general regulation of the peaceful application of nuclear energy.

The outstanding social significance of the application of nuclear energy justifies regulation by means of a law. Promulgation of the law is also supported by the fact that the rules of the Bill, and their execution, affect wide sections of the citizenry.

5. The most important principles of the Bill are as follows:

(a) Nuclear energy may be applied only for peaceful purposes; its peaceful and safe application must be promoted also by an effective international collaboration;

(b) the materials, equipment and establishments within the scope of the application of nuclear energy are, as a general rule, the property of society;

(c) nuclear energy is utilized while satisfying the safety requirements exclusively on the basis of licensing and systematic control by the state;

(d) damages resulting from the application of nuclear energy must be compensated for on the basis of special regulations.

Detailed Justification

Chapter I

General Instructions

(Pars 1-8). The Bill covers activities related to the application of nuclear energy: use of nuclear materials, radioactive materials, and ionizing radiation.

Radioactive materials emit ionizing radiation. The ionizing radiation may be used in the healing arts, scientific research, industry, and agriculture. The most important marketable property of nuclear material is the fact that under suitable conditions--through nuclear chain reaction--it may release large amounts of energy. Ionizing radiation is generated not only by radioactive materials, but it may be artifically created by suitable installations and devices.

Application of nuclear energy implies its utilization, respectively, the widest sphere of activities related to it. It includes the possession, production, storage, packaging, transportation, utilization, circulation, removal, disposal (burial) of radioactive and nuclear materials, and also the construction, operation, transformation, repair or decommissioning of establishments, equipments and devices serving the above purposes. The sphere of application of nuclear energy also includes the planning, fabrication, operation, and transformation of equipments and devices which generate ionizing radiation.

Certain radioactive materials, and equipments and devices generating ionizing radiations, create only a small amount of ionizing radiation, or a radiation of such a nature that for practical purposes, it is not considered to present a risk (for example, fluorescent tubes, TV sets etc.). This Bill does not apply to them. The danger of such devices and radioactive materials depends on the one hand on their type, and on the other hand, on the amount. It seems to be reasonable to determine them in a separate regulation (Par 1).

2. In view of the obligation assumed in the international treaty concerning the nonproliferation of nuclear weapons, proclaimed by the legal decree No 12 of 1970, and No 9 of 1972--any kind of application of nuclear energy related to nuclear weapons and to means of mass destruction, is forbidden in the Hungarian People's Republic. This principle is affirmed by the Bill (Par 2).

3. The safety of the application of nuclear energy and its position within the national production, are closely correlated with the instructions of the Bill, which affirm the socialownership of pertinent materials, establishments and equipment, the planned control of the activities by the state, the basic guiding principle of the related research and development, and the general applicability of state licensing and control.

The latter item plays an exceptionally important role in ensuring that the nuclear energy will be applied in a safe manner, and that the exploiters of nuclear energy will follow the legal regulations, the safety, radiation-protection and environmental-protection instructions. Of course, safety in the application can be achieved only if the greatest of care is taken when the nuclear energy is applied, and the exploiters follow without any exception, the regulations applicable to their activity. Therefore, administration of the tasks by the legal authorities, and the responsibility of the agencies involved in state licensing and control activities, do not relieve the exhibiter of nuclear energy from his direct responsibility. The Bill has special dispositions on this subject.

In view of the fact that the application of nuclear energy within the jurisdiction of the Bill covers a wide variety of areas, exceptionally certain materials, preparations or devices (e.g., a heart pacemaker operated with a radioactive energy source, a medical x-ray machine, etc.) may be in private possession. Their range is covered by a special legal regulation (Pars 3-6).

4. The safe application of nuclear energy for peaceful purposes requires an international effort and collaboration. Therefore, the Bill states that it must be furthered by international collaboration (Par 8).

Chapter II

Safety of the application of nuclear energy

(Pars 9-19) 1. The safe application of nuclear energy required a multifaceted development of the legal and other regulations. The Bill defines the basic rules concerning the planning, installation, realization, operation of establishments and equipment, and of the transportation, storage and utilization of nuclear materials, including the goals and basic requirements which must be fulfilled, in order to ensure the safety of the application of nuclear energy.

The Bill prescribes that suitable limit dose values be established, in order to protect the workers and the population against radiation, both during unexceptional operation while carrying out the application of nuclear energy, and in the course of certain exceptional events. The limit values must be continuously updated, under consideration of reliable scientific data, as recommended by international and domestic expert organizations. The requirements of safe operation must be determined on the basis of these data.

Increased safety is the basic requirement for the application of nuclear energy; this means the prevention of foreseeable risks, irregularities, and their harmful effects under any condition, together with those potential dangers which deserve to be taken into further consideration.

The Bill does not present details about the safety measures. Broad steps in a variety of fields are needed, depending on the properties, amount, mode of application, and other conditions of the employed radioactive materials. They cover various types and conditions of the application of nuclear energy, including questions such as: guarding nuclear establishments (control of access), suitable design, siting, preparation, installation, operation, maintenance, repair, mode of operation, of establishments and equipments, their control, planning, for breakdown, prevention, auxiliary services, etc. These points are covered in detail by executive regulations and other instructions (Pars 9-10).

As far as safety instructions are concerned, the Bill emphasizes the importance of the control of radiation conditions. For example, detection of ionizing radiation exceeding the permissible level obviously means that the technological and safety instrumentation does not function as planned. In such a case, the Bill provides that the exploiter of nuclear energy must immediately take the necessary steps; he must take steps right away to eliminate the radiation risk and to remove the fault.

The various safety measures are prescribed by legal regulations, safety rules (administrative measures) and orders of the public authorities. The exploiter of nuclear energy is obligated to follow them and to make provision for their execution (Par 11).

3. The Bill proposes to create a safety zone in order to protect the population living in the area of nuclear establishments. Because of the prohibitions and limitations to prevail in such an area, the designation of the safety zone could be detrimental to the citizens, agricultural cooperatives, etc., living or working in them. The Bill proposes to eliminate this disadvantage by prescribing that in justified cases, the area could be expropriated or trusteeship rights be acquired. The Bill guarantees that, in addition to the exploiter of nuclear energy, the owner (trustees, user) of the real estate in question may request also such an action (Par 12).

4. As a result of extraordinary events, for reasons of radiation protection--in order to protect persons, or goods--it might become necessary to evacuate a settlement or a part of it, to introduce restrictions, prohibitions and other steps, including decontamination. The Bill provides an opportunity for such exceptional measures by the public authorities (Par 13).

5. The nuclear power plant generating heat and electrical energy, occupies a very important place within the sphere of application of nuclear energy. Its establishment is of national significance, from the viewpoints of both the economy and safety. For this reason, the Bill decrees that a nuclear power plant may be established only on the basis of a decision by the Council of Ministers (Par 14).

6. It is a substantial requirement that all significant independent stages of the application of nuclear energy be dependent on a separate government licensing and control step. The various permits issued by the governmental authorities concerning the application of nuclear energy--such as approval of the establishment, start-up, modification, shutdown, siting--do not take the place of other state permits. The Bill establishes the certain fundamental conditions for licensing, furthermore, it indicates the order concerning the control of the fulfillment of instructions contained in the license.

One of the conditions of the suitable management and control involves the exact, nationwide recording of radioactive, respectively nuclear material stocks; furthermore, the listing of government licenses and control results required for the application of nuclear energy (Pars 15-19).

Chapter III

Responsibility and indemnification to the application of nuclear energy

(Pars 20-25) 1. Because of the related potential risk, the application of nuclear energy requires an exceptionally exact and safe action, and demands increased responsibility on the part of all operators. However, the various applications of nuclear energy cover varying risks, and for this reason, the responsibility must be differentiated. In view of the increased risks, it is justified in certain areas to introduce regulations which deviate somewhat from the rules of the Civil Code and are more strict.

2. Damages may arise even if the legal regulations of nuclear energy and the pertinent decrease of governmental authorites are suitably applied. In view of the increased safety requirements, damages due to the operation of establishments, in which a nuclear chain reaction is created (e.g., a nuclear reactor, a nuclear power plant) are the least probable. However, such establishments are the most dangerous ones. Transportation of nuclear material also presents a great potential danger.

According to the Bill in such cases, there is always an obligation for indemnification if the application of nuclear energy and the damage of nuclear origin--resulting from an event accompanied by radiation or radioactive contamination--have a casualty correlation with each other. In agreement with this principle, the obligation to indemnify is prescribed, regardless of guilt or illegality of the action. This form of responsibility (nuclear compensation) is stricter than that indicated by the Civil Code for activities involving high risk. Of course, the nuclear compensation applies only for cases in which the harm is of nuclear origin; if the damage is in casual correlation with the operation of a nuclear establishment or is due to a plant breakdown or other exceptional event resulting from the transportation of nuclear material, accompanied by radiation or radioactive contamination.

The nuclear compensation is an absolute responsibility, from which there is no escape. The only exception from responsibility is with respect to an injured party, who brought about the damage by his own deliberate criminal action. The strictness is expressed also in the longer period of superannuation of the responsibility. These claims lapse after ten years.

In case of nuclear compensation, the responsibility of indemnify falls on the generator of the damage--the exploiter of nuclear energy. However, it is inadmissible to allow that the party responsible for the damage by chance will not be able to take care of the indemnification claim. Therefore, the Bill makes a provision that the state guarantees the compensation.

In determining the mode and the extent of the indemnification, the instructions of Chapter 31 of the Civil Code are applicable also in the case of nuclear compensation.

If the event causing the damage by means of radiation or radioactive contamination is not the result of the operation of a nuclear establishment or of the transportation of nuclear material, the damage must be compensated for according to the regulations of the Civil Code covering high-risk activities. This rule applies also for the indemnification of the damage of foreign persons who otherwise would be entitled to nuclear compensation, but such compensation is not applicable in the absence of an international treaty or reciprocity.

Assertions of compensation claims related to the application of nuclear energy, and the rapid and simple compensation of damages are helped by the provision of the Bill, according to which the claims may be raised against a specific agency designated by the Council of Ministers (the State Insurance Agency). (Para 20-23).

1. Protection against radiation respectively, the safe application of nuclear energy lies in the public interest. For this reason, according to Para 12 and 13, safety zones may be established, persons may be protected, the use of areas, real estate, may be restricted and other regulations may be issued by the state authorities.

On the other hand, protection of the interest of citizens and legal entities requires that they be indemnified for damages caused by the above-mentioned measures taken in the public interest. In view of this, the Bill prescribes that damages caused by prohibitions and restrictions decreed in the safety zone, by works carried out within the safety zone, and moreover those resulting from measures taken by the public authorities, as described in Par 13, be compensated for by applying the legal regulations concerning expropriation. This means that the instructions given in the legal regulation about expropriation are to be applied to indicate the mode and the extent of the compensation, and the indemnification process is to be carried out on the basis of the regulations applicable for expropriation.

At the same time, the instructions of the public authorities as indicated in Par 13, may cause damages other than to real estate. Other material goods (chattel goods) may be also damaged. Live animals may be subject to emergency slaughtering, etc. In view of the fact that the legal regulations concerning expropriation refer to indemnification related to landed property, these regulations do not apply to the above-mentioned cases. For this reason, the Bill prescribes that such damages must be compensated for on the basis of the instructions of the Civil Code concerning indemnifications (Par 24).

4. The Bill expresses the viewpoint that the legal responsibility resulting from the violation of regulations concerning the application of nuclear energy, may be of various natures, application of one form of responsibility does not exclude the application of a different form of responsibility for the same behavior (Par 25).

Chapter IV

Mixed and enforced instructions

(Pars 26-27). Application of nuclear energy requires a suitable central administration and a broad collaboration. For this reason, the Bill assigns the administration, control, and development of the application of nuclear energy to the Council of Ministers. In carrying out these tasks of the Council of Ministers, the National Nuclear Energy Commission plays an outstanding role as the organ of the Council of Ministers which provides advice, counsels, coordinates, executes and controls the tasks of the public authorities; however, the ministries and the nationwide agencies have also significant tasks in this connection. It falls within the competence of the Council of Ministers to rearrange the administrative and control structure of the application of atomic energy as required by the interests of society, modifying or supplementing the existing spheres of activity, and promulgating detailed regulations concerning the application of nuclear energy (Pars 26-27).

2210
CSO: 5100

CIVIL DEFENSE INSTRUCTIONS AT NUCLEAR POWER PLANTS

Budapest MAGYAR KOZLONY in Hungarian 5 Apr 80 p 307

[Decree No 2/1980. (IV.5)HM concerning the publication of civil defense instructions related to Nuclear Power Plants]

[Text] On the basis of the authorization contained in Par 10 of Decree No 10/1978 (II.2)MT concerning certain tasks related to the nuclear power plant, I order the following:

(Par 1)

The civil defense instructions related to the operation of the nuclear power power plant--which contain the prevention (safety) and protective (saving, exempting, etc.) requirements concerning the area and the surrounding of the nuclear power plant--are issued as an appendix to this decree and I order that that they be applied.*

(Par 2)

The national civil defense staff commander ensures the execution of civil defense instructions.

(Par 3)

This decree enters in force on the day of its publication.

Signed Lajos Czinege
General of the Army
Minister of Defense

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*The Civil Defense command will send the appendix of this decree directly to the involved organizations

2210
CSO: 5100

IMPLEMENTATION OF THE LAW ON NUCLEAR ENERGY

Budapest MAGYAR KOZLONY in Hungarian 5 Apr 80, pp 301-307

[Decree No 12/1980 (IV.5) of the Council of Ministers concerning the implementation of Law No 1 of 1980 on Nuclear Energy]

[Text] On the basis of the power granted in Par 27 of the Law No 1 of 1980 (further on, referred to as the law), the Council of Ministers decrees the following:

(with respect to Paragraph 1 of the law)

Par 1

(1) In applying the law and this decree:

(a) A nuclear material is, among the radioactive materials, the uranium, the thorium, the plutonium and any kind of material which contains one or more of them, with the exception of mining or ore beneficiation products and wastes;

(b) A radioactive material is any kind of naturally occurring or artificially prepared material, regardless of its physical or chemical form, one or several components of which emit ionizing radiation, and a preparation containing such material;

(c) Ionizing radiation is the particulate and electromagnetic radiation capable to ionize;

(d) A nuclear establishment is a nuclear power plant, a nuclear critical system, a research and educational reactor, furthermore, any other installation serving the purposes of the application of nuclear material, defined by Point "I" of Article 97 of the Decree No 9 of the 1972 having the force of law;

(e) An installation or device generating ionizing radiation is one which, while consuming external energy, is capable to generate and emit ionizing radiation;

(f) An exploiter of nuclear energy is anybody who carries out the activity defined in paragraph 1, 2nd section of the law.

(2) The types and amounts of radioactive material defined in Par 1, Section (3) of the law, furthermore, the types of equipment and devices generating ionizing radiation, are determined by the Minister of Health.

(with respect to Paragraph 3 of the law)

Par 2

The main goals of the application of nuclear energy must be determined in an intermediate and long-range plan of the national economy.

(with respect to Paragraph 4 of the law)

Par 3

The Minister of Health determines the types and amounts of the materials within the sphere of application of nuclear energy, respectively the types of equipment and devices, which are not to be owned, exclusively, by society. In this connection, he is empowered to set conditions concerning the acquisition of the right of ownership of the materials, equipment or devices; furthermore, he may prescribe that their ownership and continued operation be registered.

(with respect to Paragraph 6 of the law)

Par 4

(1) The national research and development plans must indicate separately the research and development tasks related to the broadening of the areas, modes of application, and enhancement of safety of nuclear energy.

(2) It is the duty of the Minister of Education to make provision for the intermediate and higher education of the workers employed within the sphere of the application of nuclear energy--in agreement with the interested ministers (administrators of the nationwide agencies).

(3) The special professional training of the workers employed within the sphere of application of the nuclear energy is supervised by the minister involved, while the high-level continued education falls within the jurisdiction of the Minister of Education.

(with respect to Paragraph 9 of the law)

Par 5

(1) The safety requirements related to the application of nuclear energy--if there are no contrary instructions in this decree--are determined by the interested minister (the administrator of the nationwide agency) in agreement with the chairman of the National Nuclear Energy Committee (NNAC).

(2) The safety requirements related to the application of nuclear energy include:

--the conditions of nuclear safety;

--the technological conditions related to the activity;

--the quality and reliability prescriptions of the establishments, equipments and devices used for the application of nuclear energy;

--the health-protection, labor-protection, environmental protection, and hydrological conditions;

--the prescriptions in the field of food hygiene and food quality;

--the conditions for the transportation of nuclear and radioactive materials;

--the regulations to ensure public order, police and fire protection rules;

--instructions in case of abnormal operations, plant breakdown;

--the order of the internal and external control of the operations;

--instructions for record keeping;

--hygienic and other instructions concerning the workers employed within the sphere of the application of nuclear energy.

(with respect to Paragraph 10 of the law)

Par 6

(1) The Minister of Health determines the limiting dose values concerning the permissible radiation burden of the workers employed within the sphere of the application of nuclear energy and the population at large.

(2) The maximum amount, concentration and other conditions of the release of the radioactive materials, which may be released into the atmosphere in the course of the application of nuclear energy, are determined--in agreement

with the Minister of Health--by the chairman of the National Bureau for the Protection of the Environment and Nature.

(3) As far as hydrological works, water works, water consumption, protection of waters against radioactive contamination, are concerned, the legal regulations concerning hydrology, respectively the instructions issued by the chairman of the National Bureau of Water Conservation--with respect to the radioactive contamination of the waters, in cooperation with the Minister of Health--are applicable.

(with respect to Paragraph 11 of the law)

Par 7

(1) The exploiter of nuclear energy is obligated to ensure the technical-engineering, material and personnel conditions required for the safe application of nuclear energy.

(2) Anybody who in the course of his occupation, observed abnormal radiation conditions or radioactive contamination, or learns about injury caused by them, is obligated to take the necessary measures and to advise without fail the state public health-epidemiological inspectorate.

Par 8

By issuing instructions in order to maintain the required technological levels, the interested minister (administrator of the nationwide agency) may limit respectively designate, those who are entitled to prepare projects and plans for establishments and install equipments used for the application of nuclear energy, and to design, fabricate, and construct devices within the sphere of application of nuclear energy.

Par 9

Materials, equipment, devices, components and accessories needed for the construction, operation, repair or transformation of a nuclear establishment may be used only if the constructor (importer) certifies their quality by a certificate of quality or by other means.

(2) Materials, equipment, devices, components and accessories listed in Section (1) imported from abroad, may be used only if they satisfy the domestic safety prescriptions. In case of deviation, a permit must be acquired from the agency which defined the safety requirement.

(3) If an equipment, device, component or accessory, serving the purposes of the application of nuclear energy is imported from abroad, the structural and other examination which are to be performed at the manufacturing plant, may be carried out by an organ of the manufacturing country recognized by

the Hungarian agency. The interested parties should be informed about the recognized organs.

(4) The certificate issued by the organ mentioned in Section (3)--documenting the results of the examination--is considered by the Hungarian authority as being equivalent with an examination by an official agency.

(5) During the execution (production) of the establishment and equipment used for the application of nuclear energy, the project leader must ascertain that the safety-engineering, quality-ensurance and reliability requirements have been fulfilled, and the prescribed personnel, material and technological conditions have been satisfied.

Par 10

The persons employed within the sphere of the application of nuclear energy must possess the educational qualifications, respectively technical expertise, as defined by the interested minister (administrator of the nationwide agency) and satisfy the prescribed health requirements. The interested minister (administrator of the nationwide agency) may prescribe additional conditions for employment.

Par 11

(1) Workers employed at work areas with radiation risk must be subjected to systematic radiation- and health-protection control.

(2) The employer must ensure that workers assigned to work places subject to radiation risk are provided with and systematically use the control and protective devices. Workers who do not use the above-mentioned devices, must be forbidden to carry out the work.

Par 12

(1) A radiation protection service must be organized in the establishment serving the application of nuclear energy. The task of the radiation protection service is to control the radiation-protection conditions of the workers, the establishment and of the surrounding area.

(2) The operator of the establishment is responsible for the equipping and training of the radiation protection service.

(3) The administration and operation of the radiation protection service is supervised by the Minister of Health.

Par 13

The operator of the establishment serving the application of nuclear energy is obligated to develop the operational regulations (Handling instructions).

In the regulations, the planned (unexceptional) activities related to the operation of the plant, the mode of control and the requirements needed for employment in individual work areas, must be defined in full detail.

Par 14

(1) As part of the operational regulations, the operator of the establishment or equipment serving the purposes of nuclear energy, is obligated to prepare a plan for accident prevention and for taking the necessary measures. The exceptional events, the measures to be taken, if and when they occur, the modality of notifying the public authorities, and of collaborating with them, and the persons responsible for carrying out the measures and for notifying the authorities must be indicated in this plan.

(2) The operator of the establishment, and equipment serving the application of nuclear energy is obligated to report every exceptional event to the State Directorate for Public Health and Epidemiology, in case of an unusual event which causes also environmental contamination to the County Institute for Food Control and Chemical Analysis; in the case of an unusual event involving contamination of water, to the Hydrological Directorate also; moreover, to the agency which issued the start-up and operating license, to the Ministry (nationwide agency) which exercises supervision, and the operator of a nuclear establishment also to the NNEC. The public authorities are obligated to examine the conditions, causes and consequences of the unusual event and to take all necessary measures in cooperation with the interested parties.

(3) The site of the unusual event should be kept unchanged as far as possible until the beginning of the examination, with the exception of changes due to the elimination of decontamination, or measures for rescue operations.

Par 15

(1) In order to prevent in the surrounding of a nuclear establishment or equipment or of an establishment or equipment which prepares or uses radioactive materials in an amount defined in the legal regulations, a potentially dangerous situation, the chairman of the competent county or capital city council develops a plan of action--under consideration of the plans for accident prevent of the establishment for installation--in cooperation with the competent authorities. The plan should contain the measures needed to prevent and to avert the risks and should indicate the organs responsible for its execution.

(2) The chairman of the NNEC coordinates the needed countrywide measures and [illegible] of the action plan mentioned in Section (1).

(3) Determination of the civil defense requirements, related to the establishments and equipments defined in Section (1) and control of the execution of the instructions is the task of the Ministry of Defense.

Par 16

(1) The exploiter of nuclear energy is obligated to take steps to ensure that no unauthorized person will have access to the nuclear, respectively radioactive materials in his possession, the establishment or equipment involved in the application of nuclear energy operated by him, ensuring that they will not escape from his safekeeping and will not be used for an unauthorized purpose.

(2) Anybody who learns that nuclear or radioactive material, installation or equipment for generating ionizing radiation, has been or may be acquired by an unauthorized person, and furthermore, anybody who observes other irregularities in connection with the application of nuclear energy, is obligated to report it to the police without fail.

Par 17

(1) Civilian armed guards must be used to safekeep the nuclear establishment, nuclear material, installation preparing radioactive material, and central establishment used for processing and long-range storage or disposal of radioactive waste materials.

(2) The method of armed safekeeping, the requirements concerning the installation needed for police protection and signaling system and the conditions of the segregation of individual work areas and initiation of personnel monitoring, if required, are to be determined by the Minister of the Interior.

(3) In the course of providing police supervision, the police will check the execution of regulations concerning public order and public safety, in particular the import and export of materials, establishment, devices, and preparations within the sphere of the application of nuclear energy, together with their transit and transportation, safekeeping, protective devices, and furthermore, the disposal of radioactive materials, wastes, and the related records.

(4) The detailed police regulations related to the application of nuclear energy are established by the Minister of the Interior.

(with respect to Par 12 of the law)

Par 18

(1) The safety zone must be indicated in the siting license. The boundaries of the safety zone and the equipment placed within it, must be shown in the license, indicating the topographic numbers of the areas in question.

(2) Within the safety zone, the first-level construction control authority issues orders for rezoning and interdictions to build. As far as the

restrictions in usage are concerned, the first-level construction control authority must obtain a preliminary permit of the special administrative organ for agricultural tasks of the executive committee of the council, and the case of woods (afforestation), of the forestry supervisory agency.

(3) The establishment of the safety zone, furthermore the interdictions and limitations imposed on the real estate must be recorded in the registry of real property (cadastral records) at the demand of the licensing or requesting agency.

Par 19

When the safety zone is designated, furthermore when limitations in the usage are ordered, the instructions in the legal regulations concerning the protection of agricultural land must be also applied.

(with respect to Par 13 of the law)

Par 20

(1) In order to prevent the spreading of radioactive contamination, the state public-health and epidemiological agency

(a) may place a person who, because of radioactive contamination, could present a risk to the health of others under sanitary observation, may forbid him to visit certain specific areas, and may obligate him to be subject to continuous or periodical medical examination, or to medical treatment for a single occasion or a set period of time;

(b) may order the decontamination of areas, real estate, buildings or other structures, and of material goods, limiting or forbidding their use (consumption) and circulation for a definite or indefinite time period;

(c) may order the destruction of contaminated material goods, or in case of livestock, their emergency slaughtering;

(d) if the conditions stated in Point (c), Par 27, Law No 3 of 1964 about construction prevail, makes an appeal to the building authority concerning the renovation, repair, transformation or tearing down of the building or of other structures.

(2) In the course of the application of Points (b) and (c) of Section (1), the State Public Health and Epidemiological Directorate acts with respect to foodstuff, tobacco products, agricultural products and produce, in cooperation with the country institute for food control and chemical analysis, and in case of livestock, with the country veterinary health station.

(3) A decision reached on the basis of Section (1)--concerning serious risks to health or the human environment--is to be carried out without consideration of appeal.

Par 21

If the safety of the population renders it necessary, the chairman of the county (capital city) council may decree restrictions in the movement of the population within a defined area of the county (capital city), forbidding residence, evacuating a specifically defined area, and in connection with this, restricting or forbidding the use of real estate, buildings and other structures, and of other material goods.

(with respect to Par 15 of the law)

Par 22

In the case of a nuclear establishment--with the exception of the items listed in Section (2) of Par 23--a license from the public authorities is required to fabricate or to import from abroad, an equipment representing a component or an accessory of the establishment.

Par 23

(1) As far as the nuclear establishment is concerned

(a) definition of the contents of the technological plan,

(b) regulation of the safety requirements, respectively of the safety-engineering supervision of the manufacture or importation from abroad, of the equipment to be installed, started up, operated, transformed, repaired, shut down, or utilized,

(c) the safety engineering licensing requirements for the manufacture and importation from abroad, for the installation, start-up, respectively, operation, transformation or shutdown of an equipment representing a component or an accessory of the establishment--with the exception indicated in Section (2)--

falls within the jurisdiction of the Minister of Heavy Industry

(2) The license required for the installation, start-up, respectively operation, transformation, or shut-down of nuclear critical systems, research and educational atomic reactors and other experimental nuclear installations, and of independent storage units, is issued by the chairman of NNEC.

(3) The permit needed for the installation, start-up, respectively operation, transformation and shut down of an establishment and equipment for the manufacture, production, storage, utilization, transformation and disposal of radioactive materials and wastes, furthermore, for the preparation, operation and transformation of equipment generating ionizing radiation, is regulated by the Minister of Health.

(4) The license included in Sections (1-3) include also the agreements of the specialized agencies, related to the application of atomic energy.

Par 24

The start-up of the nuclear power plant--on the basis of the license mentioned in Section (1) of Par 23--is approved by an initiating and acceptance committee, consisting of representatives of the ministers (administrators of nationwide agencies) as determined by the Council of Ministers.

Par 25

The construction codes of buildings connected with nuclear establishments are determined by the Minister of Construction and Urban Development.

(2) The transportation of nuclear and radioactive materials is regulated by the Minister of Transportation and Postal Affairs, in agreement with the Minister of the Interior, the Minister of Defense--and, as far as international transportations are concerned, with the chairman of NNEC.

(with respect to Par 18 of the law)

Par 26

(1) The agency entitled to control may appoint an institution, which possesses the necessary personnel and equipment to carry out special control examinations.

(2) The NNEC may carry out examination at any agency interested in the application of nuclear energy, and may request information from any agency.

(with respect to Par 19 of the law)

Par 27

In addition to the registry mentioned in Section (1) of Par 19 of the law, every agency which prepares, produces, uses (stores) or disposes--permanently or temporarily--a material or preparation under the jurisdiction of the law, must maintain a record and an operational log book.

(with respect to Par 23 of the law)

Par 28

Claims for indemnification for damages defined in Pars 20 and 22 of the law may be made exclusively against the State Insurance Agency. This does not affect the claim of the State Insurance for indemnification against the party responsible for the damage.

(with respect to Par 26 of the law)

Par 29

The Council of Ministers carries out its tasks concerning the application of nuclear energy, in collaboration with the NNEC and the ministers and administrators of nationwide agencies. The tasks, jurisdictions and organization of NNEC are defined by Decree No 1023/1978 (VII.4) Mt.h.

(with respect to Par 27 of the law)

Par 30

This decree enters in force on July 1, 1980, and at the same time, the Decrees No 10/1967, (V.7) KORM, and 10/1978 (II.2)MT are repealed.

Signed Gyorgy Lazar
Chairman of the Council of Ministers

2210
CSO: 5100

INTER-AMERICAN AFFAIRS

BRAZILIAN COMPONENTS TO BE EXCHANGED WITH ARGENTINA

PY071702 Rio de Janeiro JORNAL DO BRASIL in Portuguese 4 May 80 p 37

[Excerpts] Brasilia--Through NUCLEP (Nuclebras Heavy Equipment, Inc), Brazil will supply Argentina with pressure vessels and steam generators for the Atucha 2 nuclear reactor, whose main contractor is the German firm KWU (Kraftwerk Union AG), the same enterprise which provides the engineering and part of the components for the Brazilian nuclear program. The KWU owns 8.33 percent of NUCLEP's capital.

This report has been released by Mines and Energy Ministry sources who stated that, on the other hand, Argentina's CNEA [National Atomic Energy Commission] will supply zircalloy tubes to NUCLEBRAS [Brazilian Nuclear Corporation] for the encasement of fuel element uranium pellets, probably beginning with the refueling [recarga] of Angra 1, which NUCLEBRAS hopes to build beginning in 1981.

According to the same Mines and Energy Ministry source, the main objective of the nuclear cooperation agreement between Brazil and Argentina, to be signed during President Figueiredo's visit to Buenos Aires this month, is the completion of the two countries nuclear fuel cycles--which are in the process of installation--without any foreign pressure.

Although they have decided to use different types of nuclear reactors (Brazil has chosen the PWR [pressurized water reactor], which uses enriched uranium as fuel and pressurized light water as coolant, while Argentina has adopted the HWR, [heavy water reactor] which uses natural uranium as fuel and heavy water as coolant), the fuel cycles of both countries have many points in common, and there are opportunities for cooperation.

According to the same sources, it is possible that, pressed by the FRG Government through the KWU, Brazil and Argentina will be forced to sign a tripartite safeguards treaty with the IAEA, covering at least the components for the Atucha 2 reactor which will be built by NUCLEP, since they are part of a larger delivery by the KWU.

Another positive aspect of the Argentine-Brazilian nuclear alliance could be the future formation of a consortium between the two countries capable of supplying nuclear equipment and services to Third World countries, covering the two main types of reactors in use throughout the world.

CSO: 5100

BRIEFS

OAS AID TO URUGUAY--(Marcelo Alonso), executive secretary of the Inter-American Nuclear Energy Commission, stated during a press conference that the OAS has granted Uruguay the important sum of $180,000 per year to finance development in the nuclear field. [PY151144 Montevideo El Espectador Network in Spanish 1600 GMT 16 May 80]

CSO: 5500

CASTRO MADERO DISCUSSES NUCLEAR POLICY

Company as Industrial Architect

PY091515 Buenos Aires NOTICIAS ARGENTINAS in Spanish 1237 GMT 9 May 80

[Text] Buenos Aires, 9 May (NA)--Carlos Castro Madero, chairman of the National Atomic Energy Commission (CNEA), today announced that the third Argentine nuclear plant, the "Atucha 2," will begin operating in July 1987, according to the contracts which will be signed this afternoon with the FRG firm Kraftwerks Union AG (KWU), which will build the plant.

Castro Madero emphasized that the CNEA has decided against "turnkey projects" and therefore the contracts which will be signed this afternoon at CNEA headquarters provide for the creation of an engineering company which will act as an "industrial architect."

Castro Madero stated in his telephone interview that the contract with Canada for the construction of the Embalse nuclear plant has been changed so the project is no longer "turnkey," because the CNEA will have new responsibilities in the construction of the plant. During the interview, Castro Madero also revealed that a draft accord between the CNEA, its Brazilian counterpart and NUCLEBRAS has been prepared. This draft accord will be discussed during the coming visit of Brazilian President Joao Baptista de Figueiredo to Argentina.

The contract with the KWU, arranged after difficult negotiations cleared away the political obstacles which were delaying it, will be signed at 1500 at CNEA's headquarters, and at the end of the ceremony Castro Madero will hold a press conference.

This morning Castro Madero commented that "after a long process we have prepared the various contracts through which our third nuclear plant will be built."

In this regard, he noted that "the CNEA has made a very important decision against contracting "turnkey projects" and this means that "these contracts involve the creation of an engineering company which will act as an industrial architect, that is, it will play a role in design, construction, purchasing, following up purchase orders and everything related to quality control."

In response to a question, Castro Madero reported that "according to estimates" the new nuclear plant "will go into operation in July 1987."

He also commented on the talks with Canada motivated by various aspects of the construction of the Embalse nuclear plant and indicated that the original contract had been on a "turnkey" basis. But now, he said, "since we have renegotiated it, the contract has changed, and the CNEA will be responsible for everything related to on-site construction, purchasing and following up purchase orders."

Asked about the remarks which a Brazilian newspaper attributed to him to the effect that "the Latin American countries must not give up the right to set off nuclear explosions for peaceful uses whenever they have economically valid reasons for doing so," Castro Madero confirmed that he had indeed made such remarks.

He explained, "I believe that nuclear energy opens many future possibilities which are still to be fully explored, and therefore I believe that the countries must not give up the right to use atomic explosions for peaceful purposes."

He stated that "the Latin American countries made this very clear when they signed the Tlaltelolco Treaty."

He said: "Of course, I believe that the preparation and development of these explosions must be conducted under the normal safeguards required by the international organization.

Castro Madero also discussed the results which the coming visit of Brazilian President Joao Baptista de Figueiredo may yield in the field of nuclear energy. He said: "We have prepared a draft cooperation accord with out Brazilian counterpart and NUCLEBRAS in which we outline common interests and the manner in which this cooperation could be implemented through the exchange of experts and information."

CNEA, KWU Sign Contract

LD100054 Hamburg DPA in German 2115 GMT 9 May 80

[Excerpt] Buenos Aires--The Argentine National Atomic Energy Commission (CNEA) and the Siemens subsidiary Kraftwerksunion (KWU) signed a contract today in Buenos Aires on the delivery of a 600 megawatts heavy-water reactor worth DM 2.5 billion.

CSO: 5100

GOVERNMENT SECTORS URGE 10-15-YEAR DELAY OF NUCLEAR PROGRAM

Sao Paulo FOLHA DE SAO PAULO in Portuguese 13 Apr 80 p 39

[Text] Brasilia--Certain sectors of the Brazilian Government advocate the need to delay for another 10 to 15 years the timetable for implementation of the nuclear program. During that period, the use of anthracite coal would be intensified to take care of the increased demand for electric energy. In order for that delay to be possible, the idea advocated by those government sectors calls for execution of only the projects already contracted with the Germans under the nuclear agreement and carrying out the other projects at a slower rate.

Another drawback pointed out by the government sources pertains to the activity of the Brazilian Nuclear Corporation (NUCLEBRAS) a company that was created pratically for the purpose implementing the nuclear program through the agreement signed with the Federal Republic of Germany.

"NUCLEBRAS could continue that activity but at a much slower pace, or it could diversify its activities into other sectors where there is no private company in operation, as for example, the manufacture of equipment for coal-fired thermoelectric plants," said the government sources. According to them, there is even the possibility of the president of that company, Paulo Nogueira Batista, being replaced. One of the names considered by the government sources is that of the present rector of the University of Brasilia, Jose Carlos Azevedo, who majored in nuclear engineering.

According to the same sources, that opinion has already been expressed to Minister of Mines and Energy Cesar Cals who, however, has not taken any position. But the sources recall that it was on the decision of Minister Cesar Cals that implementation of the Brazilian nuclear program was extended for 5 years--that is, to 1995, when the original date had been 1990. Naturally, a decision to delay the timetable of the Brazilian nuclear program even further, in the opinion of the sources, would have to be taken at the level of the president of the republic after consultation with the National Security Council. But the sources recall that there is already an almost general feeling in the nuclear investigating committee of the Federal Senate in favor delaying the nuclear program until technical questions (for example, the enrichment process, which has not yet been proved on a commercial scale), economic questions (the high cost of the program) and political questions (acceptance by Brazilian society of the implementation of the complete nuclear technology cycle) have been decided.

Despite the existence of technical, political and economic factors involved in the implementation of the Brazilian nuclear program, those government circles that advocate delaying that program for another 10 or 15 years base themselves only on economic-financial calculations. They recall, for example, that the president of Furnas himself, Licinio Seabra, revealed this week that the two nuclear power stations Angra-2 and -3, alone, at December 1979 prices and based on the current rate of the dollar, will cost all together more than 300 million [as published] cruzeiros.

All of the assets of the Brazilian electric system, including the hydroelectric plants, have an estimated value of 500 billion cruzeiros.

8711
CSO: 5100

CNEN 1974 DOCUMENT CITES OPTIONS FOR NUCLEAR PROGRAM

San Paulo FOLHA DE SAO PAULO in Portuguese 21 Apr 80 p 4

[Text] Brasilia--Brazil should not have chosen only one option from among four alternatives in formulating its nuclear program because "the adoption of a single option from among the four different options as a working guideline would imply a prospective shortcoming since it would fail to take care of the components of national power, especially in the long term." As a matter of fact, "under normal conditions a rational decision would be a proportional share of capital invested among the four available options."

That warning was made in a document prepared by the National Nuclear Energy Commission (CNEN) in 1974, entitled "Alternatives for Formulation of the Guidelines of Brazilian Nuclear Planning," which presents a "matrix of options" with four viable alternatives in the short and medium term related to the development of nuclear technology for the generation of electric energy and for the application of reactors for other purposes, referring also to the "application of nuclear explosives." The four alternatives presented in the matrix of options were: the import of fissionable material with safeguard clauses through international agencies; the development of nuclear technology in international cooperation with countries, whether signatories or nonsignatories of the nonproliferation treaty (NPT), with safeguard clauses; the same alternative as the foregoing but without safeguard clauses; and "taking care of Brazilian nuclear problems through the production and use of any fissionable materials supplied by the national complex, with national manpower, without subjecting to safeguards the whole system that availed itself of those materials."

According to the same document, there was also another alternative which was not even examined because it was considered "improbable: the import of nuclear technology without safeguard clauses--although it indicated that it was "a possible alternative in the event that exceptional international situations which the country should be mindful of should arise." And after pointing out the "adverse factors" of each of the alternatives, the CNEN document concludes by suggesting the selection of a mixed alternative among the four options, through a "proportional share of capital invested among the four available options."

"Observing the distribution of the options," the document points out, "it is noted generally that the Brazilian nuclear problems can be resolved in the short term by importing, with the consequent safeguard over installations. In the medium term, the options pertaining to development in cooperation with other countries, with or without safeguards, are feasible. Independence in obtaining fissionable materials, with all of the impact on national security, the international security of the country, industrial development, etc., is viable in the long term provided that no national emergency dictates the need for that term to be reduced. Such a reduction would be possible with large investments and obviously subject to variables of a technical nature."

Brazilian Option

Despite the CNEN's warning, which considers nuclear energy as the most probable alternative for Brazil, the Brazilian Government opted for a single solution--the second in the matrix of options, that is, "partially taking care of Brazilian nuclear problems through international cooperation with countries whether signatories or nonsignatories of the NPT for the availability of fissionable materials and the consequent safeguard of the whole system that avails itself of those materials." According to the same document, the object of that option: "short and medium-term solution of the national energy problem, excepting for application of nuclear explosives; strengthening of the national economic structure and expansion of the domestic market; progressive national participation, including through the transfer of technology." Among the "adverse factors" of that option, the document cites: "Complete abdication of national security with reference to nuclear devices"; the possibility of long-term dependence of the Brazilian industrial complex on foreign and multinational companies."

But the other alternatives also presented "adverse factors," according to the same document. The object of the first option--the import of fissionable material with a safeguard clause--was the "short-term solution of the national energy problem, excepting for applications of nuclear explosives," but the document points out its "adverse factors": complete dependence on foreign powers in obtaining the fissionable material; complete abdication of national security with reference to nuclear devices and the supplying of fissionable material for its reactors; national budget programming with a large part of the funds transferred to foreign companies; exclusion of national industry, with negative repercussions on the Brazilian macroeconomy."

The ultimate objective of option number three--cooperation without safeguards--was "the medium-term solution of the national energy problem; strengthening of the national economic structure and expansion of the domestic market; and progressive national participation, including through the transfer of technology." Its "adverse factors" pointed out are: "possible repercussions pertaining to national security with reference to nuclear devices in the future; partial dependence of foreign policy, subject to revisions of the external and domestic policies of the associated country, with unforeseen consequences; possibilities of international political-economic sanctions."

The objectives of the fourth option--development of nuclear technology with national funds and manpower, that is, independent development--were: "taking care of the objectives dictated by national security; independence regarding the supplying of fissionable material; intense development of a national research and development program; strengthening of the national economic structure and expansion of the domestic market." As "adverse factors" of that option, the document points out: "the long-term solution of the national energy problems, large and long-term national budgetary programming; the gaining of significant results only at medium and long term; the possibility of suffering political-nuclear isolation and dominant pressures by the countries signatories of the NPT, especially two nuclear powers; the impossibility of reducing the number of stages to be completed in nuclear development, with consequent problems of the development of know-how."

After considering that "it would not be possible to cope with all of the problems stemming from national requirements," by the selection of only one of the four options, the document presents examples: "If operation number one (importing with safeguards) were selected to guide nuclear policy, the country would not be able to escape from economic and technical dependence. If only option number four (independence) were selected, the country's economic effort would be overloaded because of the huge requirements for capital and the training of the labor force to implement it." For that reason, the document suggests a mixed solution, pointing out at the end of its conclusions that "the national policy of security is interdependent with national policy and nuclear development." And it adds: "The first without the second would be extremely burdensome to the country. On the other hand, although it may seem that nuclear activities on noneconomic bases would be disastrous for the country, the savings generated by that decision are solid bases for the future of the country."

8711
CSO: 5100

NUCLEP TO BUILD EQUIPMENT FOR ANGRA-3

Sao Paulo FOLHA DE SAO PAULO in Portuguese 23 Apr 80 p 6

[Text] Rio--The president of Furnas Electric Power Stations, Licinio Marcelo Seabra, revealed yesterday that negotiations with a view to transferring the construction of the pressurizer of the Angra-3 nuclear power station to NUCLEBRAS Heavy Equipment (NUCLEP) are in the final phase.

Inauguration of the NUCLEP factory is scheduled for 7 May. The equipment was to have been supplied by Kraftwork Union, according to the contracts signed in mid-1976 between Furnas and the German company. However, with the extension of the timetables for construction of Angra-2 and -3, there will be time for some equipment, including the pressurizer, to be built by NUCLEP, according to the statements made last year by officials of that sector.

Licinio Seabra said that conditions of the transfer are being negotiated jointly by Furnas, NUCLEBRAS, NUCLEP and KWU. With regard to the possibility that the difficulties in the flow of financial resources to the electric sector may jeopardize implementation of the timetables, the president of Furnas acknowledged that, depending on the growth of inflation and the availability of funds, the projects might undergo a slowdown that will be extended over months in order that there will not be any interruption in the payments of the suppliers.

Councilman Protests

At an official session of the city council of Itanhaem--held yesterday to commemorate the 448th anniversary of the city--Councilman Ernesto Zwarg Junior protested against the planned installation of a nuclear plant in Peruibe and the export of arms manufactured in Brazil.

"Europe does not want any more nuclear plants. Germany does not want any more. The United States wants to put an end to them. We are all going to join to prevent a natural landscape from being destroyed. We are going to save Paranapua from the installation of the nuclear plant," declared the councilman. "As the grandson of Germans, I protest against Brazil's nuclear contract with Germany."

8711
CSO: 5100

ROUNDUP OF GOB STATEMENTS ON PNE'S; ACCORD WITH ARGENTINA

Peaceful Nuclear Explosions Possible

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 9 May 80 p 5

[Text] Brazil does not discount the possibility of carrying out nuclear explosions for peaceful purposes, according to a statement made in Rio yesterday by Foreigh Minister Saraiva Guerreiro at the inauguration of the NUCLEBRAS Heavy Equipment Corporation (NUCLEP). "We maintain the position of the right to use nuclear energy for peaceful purposes, including explosions,"declared the minister.

On the other hand, the chairman of the National Nuclear Energy Commission (CNEN), Hervasio de Carvalho, expressed vehement opposition to explosions. He did not believe the idea of Latin American countries conducting that type of experiment came from the chairman of the Argentine commission, Admiral Castro Madero.

In the opinion of Hervasio de Carvalho, "Atomic explosions, even for peaceful purposes, generate serious political problems because the real intention of the operation can never be proved." He cited the example of India, which exploded its atomic bomb, of a peaceful nature, according to the Indian authorities, and it is still encountering political problems stemming from the experiment.

In addition, argued the CNEN chairman, "atomic explosions, even peaceful ones, are a failure from an ecological viewpoint and should not be carried out." Hervasio de Carvalho conceded, however, that at such time as the operation is perfected, Brazil might consider whether it was important or not to carry out nuclear explosions.

In the meantime, Mines and Energy Minister Cesar Cals avoided commenting on the subject, declaring only that the Brazilian nuclear program is strictly linked with the generation of electric energy and no nuclear explosions are envisaged, even for peaceful purposes.

Asked about the possibility of the two countries exploding a bomb, the German ambassador to Brazil, Jorg Kastl, said that Germany has concluded many international agreements on safeguards and declared that his country has no desire to carry out such explosions "because the experiment would have political and military implications." The ambassador thought they were referring to an explosion for military purposes and when the reporters persisted in asking about "peaceful purposes"the interview was interrupted by the office chief of the president of the Brazilian Nuclear Corporation (NUCLEBRAS), Hardeman, who asked "for the love of God" that they not ask questions of that type. After that, he drew the ambassador away because "he might say things that were inadvisable."

The German ambassador said that the delay in the Brazilian nuclear program is no cause for concern because delays occur in Germany also and, therefore, are considered normal. "The agreement will be maintained calmly," he asserted.

In Brasilia, the Foreign Ministry press secretary, Bernardo Pericas, said that there was nothing new in the statements by Admiral Castro Madero with regard to the use of nuclear explosions for peaceful purposes "because that use is envisaged and regulated by the Tlatelolco Treaty, in Article 18, since 1967, and Brazil is one of the signatories."

Cals Against Nuclear Explosions

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 10 May 80 p 5

[Text] Rio--Mines and Energy Minister Cesar Cals said in Rio yesterday that Brazil does not need to carry out nuclear explosions for peaceful purposes "because it is already expending great economic effort in the nuclear sector only for the generation of electric energy."

According to the chairman of the Argentine Atomic Energy Commission, Admiral Castro Madero, peaceful nuclear explosions are important for the construction of navigable maritime and river waterways and to facilitate the exploration of oil and gas.

According to Minister Cesar Cals, there are few countries that have mastered nuclear technology and fuel cycle technology, including the enrichment of uranium, "thus, the pressure of the countries that do not have technology on those that are advanced in that field."

Cesar Cals said that by the year 2000, Brazil will already be producing all components of the nuclear power plants and will have completely mastered fuel cycle technology. The last nuclear power plants envisaged in the agreement with Germany will be operating in the mid-1990's.

The minister revealed also that uranium exploration will be conducted now at a slower pace "because the country already has enough reserves to cover all of the present nuclear program. The financial resources that would be utilized in uranium exploration will be transferred to other sectors of the nuclear program.

With regard to the atomic waste disposal site, the minister said that because of the people's fear of nuclear waste, "the National Nuclear Energy Commission (CNEN) has been directed to find an uninhabited island for it. It was a political decision on the part of the government." During the inauguration of NUCLEP, the president of NUCLEBRAS, Paulo Nogueira Batista, declared that the atomic waste would be placed near the reprocessing plant, although he pointed out that it is still too early to select the site.

U.S. Opposes Atomic Explosions

Sao Paulo FOLHA DE SAO PAULO in Portuguese 9 May 80 p 5

[Text] Rio --"The United States does not believe that nuclear explosions are an appropriate way to utilize nuclear energy," declared the chairman of the U.S. Nuclear Regulatory Commission (NRC), Richard Thomas Kennedy, yesterday. The statement was made in commenting on the statements of the chairman of the Argentine National Atomic Energy Commission (CNEA), Vice Admiral Castro Madero, that the Latin American countries should not renounce nuclear explosions for peaceful purposes. With regard to nuclear cooperation between Brazil and Argentina, Richard Kennedy said that the United States "views with satisfaction all efforts at cooperation and good relations in the area of nuclear policy."

In the meantime, Mines and Energy Minister Cesar Cals said that Brazilian plans do not include nuclear explosions for peaceful purposes."

Cals added further that Brazil might export heavy equipment for nuclear plants to Argentina. According to him, that is envisaged in the agreement with the country but the Brazilian authorities still have to determine what type of equipment will be exported.

Loss of Millions

In a press interview in the U.S. Consulate, the chairman of the NRC, who is President Carter's adviser for planning and national security affairs, revealed that the "loss resulting from the Three Mile Island plant accident amounts to several hundred million dollars, including material damages, the shutdown time, and the repairs that would have to be made if the plant were to resume operations, something that can only be considered in the remote future."

Considered "the most serious accident that has occurred in many years, from the point of view of damages caused to the facilities, but not from the point of view of protection and public health," it brought about a 1-year suspension in the granting of new authorizations for the construction of plants, which was only resumed last April.

The NRC chairman emphasized that "the accident is now a thing of the past, but among the things it left behind are thousands of gallons of contaminated water inside the plant facilities and radioactive gases. One of the alternatives, not yet chosen, for decontamination is the release of the gases into the atmosphere little by little and treatment of the water." According to Richard Kennedy, "retention of the contaminated water and the gases always represents a risk."

He added that the accident caused the introduction of many modifications in the design and implementation of American atomic plants.

Nuclear Autonomy Targeted

Brasilia CORREIO BRAZILIENSE in Portuguese 11 May 80 p 15

[Text] Buenos Aires -- The nuclear agreement Argentina and Brazil will sign in Buenos Aires next week will represent the most far-reaching agreement in the long-term ever signed between the two countries, according to diplomatic sources.

The agreement not only will guarantee the autonomous development of the two countries in the nuclear area but will also represent for both a new, important diplomatic negotiating weapon vis-a-vis the United States.

The agreement, which will be signed during the visit of the president of Brazil, General Joao Baptista Figueiredo, to Argentina, implies practically the creation of a continental front in terms of U.S. policy in that area.

Both Argentina and Brazil repeatedly refused to sign the Nuclear Nonproliferation Treaty urged by the U.S. State Department because they considered that it has the dual effect of hindering the autonomous development of Third World countries in the atomic area and of legalizing the monopoly of the big powers in that area.

The signing of an agreement between the two Latin American countries also implies a categorical denial of any possibility of an atomic race between them.

Argentina has always indicated that the decision of a country to produce nuclear weapons depends on an escalation of political values and cannot depend on the pressure of other countries on the basis of withholding technology.

In recent statements in Brazil, the chairman of the Argentine Atomic Energy Commission (CNEA), Vice Admiral Carlos Castro Madero said that the countries of Latin America should not renounce the possibility of carrying out nuclear explosions for peaceful purposes when there are economic reasons for doing so."

Those statements, made in Brazil less than a week before the visit of Figueiredo to Argentina and the signing of the nuclear complementation bilateral treaty, were regarded as a reaffirmation of the Argentine position vis-a-vis the United States.

Castro Madero reiterated that "the fear that the two countries will produce nuclear weapons are completely baseless."

The agreement that will be signed next week provides for Brazil to deliver to Argentina a pressure vessel and generators for the Atucha-2 nuclear plant, the main contractor of which is Kraftwerk Union AG (KWU), of the Federal Republic of Germany.

In the meantime, Argentina will deliver to Brazil tubing for the storage of uranium pellets, probably beginning in 1981.

Even though Brazil bases its nuclear development on the cycle of enriched uranium and pressurized, light water, while Argentine uses natural uranium and heavy-water cooling, the two countries have a broad area for cooperation in the nuclear field, which will begin to be made possible by the agreement that will be signed next week.

Brazil-Argentina Convergence

Rio de Janeiro O GLOBO in Portuguese 12 May 80 p 4

[Editorial: "Moment of Convergence"]

[Text] Forty-five years passed, since Getulio Vargas, before the climate was favorable for the visit of a Brazilian chief of state to Argentina. That favorable climate exists now, involving the trip of President Figueiredo. And it has become so propitious that the analyses are unanimous in viewing the episode as the milestone of a new period in the history of relations between the two countries.

In more immediate terms, President Figueiredo's visit crowns the process of Argentine-Brazilian reconciliation initiated by solution of the crisis over the Itaipu and Corpus hydroelectric plants, after the differences -- originally technical, regarding the compatibility of the two dams -- came to assume the dimensions of a diplomatic impasse.

Fortunately for both countries and for the destiny of the continent itself Brazil and Argentina decided to replace the sterile and dangerous exercise of differences with a search for convergence in all available areas. Thus, the agenda of the Buenos Aires meetings, whether between presidents of the republic, ministers or businessmen includes a long list of topics on which bilateral political and economic cooperation can progress enormously.

The animosities born and nurtured on the basis of different cultural backgrounds, nationalistic sentiments, disputes over continental prestige, strategic rivalries, fears of hegemonic pressure, etc must be buried once and for all and charged to a regrettable historical deviation. Because as a matter of fact, Brazil and Argentina have an unlimited potential for complementation, in their economies, their development processes and their foreign policy positions. And there is nothing essential in the soul of the two peoples that justifies the reciprocal nurturing of reservations or resentment.

Inasmuch as we are already the principal trade partner of Argentina a new, broad opening promoted from here on will multiply the economic exchange in both directions, including freeing the two countries from foreign dependence, seriously affected by the instability of the international situation. Oil, wheat, food in general, atomic energy, manufactured goods, all are items for a large program of economic integration and for the international division of labor, which finds exemplary opportunities in the Brazilian-Argentine framework.

It is not a matter of creating a Brasilia-Buenos Aires axis but of consolidating and broadening a natural inclination toward rapprochement. Alongside its close links with Argentina, Brazil wants to maintain its classic line of harmonious relations with all the countries of Latin America, without joining blocs and regional pacts.

In any case, however, a greater political identification between the two principal nations in the continent is essential and in that regard the procedure of periodic consultations, which Presidents Figueiredo and Videla are probably going to institute during this festival of reconciliation responds perfectly to the responsibilities which the reconciled partners of the Southern Cone need to discharge together in the hemisphere and in the world context.

Figueiredo Visit

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 14 May 80 p 3

[Editorial article: "An Opening for Understanding"]

[Text] Today, President Joao Baptista Figueiredo begins his visit to Argentina, characterized as a milestone in relations beteen the two countries on the collaboration of which the harmonious political and economic development of Latin America depends. It must be recognized that had the personalities of the president of the republic and foreign minister been different, the improvement of relations between the two governments would not have been possible as rapidly as it occurred. As a matter of fact, much as Geisel and Silveira wished to see the dispute with Argentina resolved during his administration, they did not have the necessary sensitivity to realize that the backdrop on which Brazilian-Argentine relations were projected since the fall of Peron, in 1955, demanded a magnanimous gesture on our part that would enable President Videla to overcome internal resistance --basically that of Buenos Aires nationalism -- to reach understanding. The Figueiredo-Saraiva Guerreiro administration knew how to make that gesture, signing the agreement on Corpus-Itaipu, which gave the Argentine circles more receptive to the realities of interdependence of arguments to force rapprochement.

This visit does not mean that the future of harmonious relations betweem the Planalto Palace and the Casa Rosada are assured: To believe that from now on the interests that for years have opposed a correct understanding have been overcome will be to be unaware of the influence which crystallized situations such as those we face in the Plate region have on diplomatic relations. On the contrary, it is to be expected that in the first months after the signing of the accords, which already appear to be agreed upon, the will a resumption of the pressures on the Argentine Government not to commit itself too much on the road to integration signaled in the recent statements of Presidents Videla and Figueiredo.

That resistance, already well-known in the days preceding the visit of President Figueiredo, are only part of those of a broader psychological nature to be overcome. That is why the meeting between the two chiefs of state must be seen from a generic perspective, not harboring illusions about immediate concrete results. The nuclear agreement itself, about which so much has been said, is more a declaration of political intentions than a technical or technological arrangement, properly speaking. The interview with Admiral Madero, chairman of the Argentina National Atomic Energy Commission, which we published a few days ago, is proof of that, revealing the progress of the Argentine program, which appreciably reduces the possibilities of a fruitful exchange between the state companies in that sector, or even between the scientific communities.

It is, therefore, politically -- for the future of diplomatic and possibly economic relations -- that this visit is important. In a turbulent world, in which the developing countries are struggling with increasing difficulty to assert their presence in the international market, overcoming the protectionist resistance of the industrialized countries, it is more than advisable for two nations the size of Brazil and Argentina to overcome their differences and suspicions and for their governments to "synchronize their watches" to face the crises that are looming on the horizon.

A broad political understanding between them, whether or not it is translated into formal consultation procedures on the most diverse matters, is an essential condition to enable Latin America to move in the direction of economic integration. However, in order to do that, it is necessary that the idea of interdependence be present in the two governments and in the two countries. If outdated ideas of "colonial pacts" and "dependencies" should come to disturb the understanding on the economic level, there will prevail a narrow nationalism that always end up being translated into political and diplomatic tensions. The idea that Brazil and Argentina, by the complementary nature of their economies can give a salutary example to the countries of Latin America, we believe, is going to govern negotiations between the two presidents. If it should prevail, and if President Figueiredo succeeds in demonstrating that Brazil does not harbor -- as in fact, it does not -- aspirations of leadership and hegemony, the two countries will be in a position to take decisive steps toward overcome together the crises to which they are subject as a result of world interdependence.

Continental Policy

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 8 May 80 p 3

[Editorial article: "Brazil and Argentina in the American Context"]

[Text] No one in recent years hurt the position of Brazil more, in relation to the Latin American system and its members -- among them, one of the most powerful: Argentina -- than Richard Nixon when, on the occasion of the visit of President Medici to Washington, he made that unfortunate statement: "Where Brazil leans, so will Latin America." That statement, for which our diplomacy was not responsible, contributed to our neighbors and brothers on the continent ascribing to Brazil an inclination to engage in subimperialism and acting as a proxy for the superpower to the north. The truth, however, is completely the contrary, and proof of that was the deterioration of Brazilian-U.S. relations during the Geisel-Silveira administration. That is why in these columns we have systematically tried to correct the implications of Nixon's statement, replacing it with another more authentic and truthful one: Where Brazilian-Argentine relations lean, so will Latin America.

It was for that reason, furthermore, that in times now definitely past and marked by the intransigence of Geisel and the aggressiveness of Silveira, we did not cease to evoke the guidelines of the foreign policy of the administration of Castelo Branco and Leitao da Cunha who aware of national interests and traditions reiterated the fact that the foreign policy of Brazil was formed in concentric circles, the focus of which is the Plate Basin. The misunderstandings between Brazil and Argentina, in fact, revolve around the Plate Basin -- the relationship with Paraguay which, taking advantage of these misunderstandings, hoped to be able to continue its traditional pendular policy -- and the Itaipu and Corpus hydroelectric complexes. It is very gratifying that in an interview granted to our correspondents, President Videla, clear-thinking and conciliatory, not only mitigated the scope of past misunderstandings, describing them as transient, pertaining to some very specific facts and as "conflictive situations within the bounds of our relations." General Videla believes that historically, there are only understandings between Brazil and Argentina." For that reason it was possible, notwithstanding the hard and arduous bargaining, to eliminate those conflictive situations. "We believe," said President Videla, "that the solution was good because, more than optimizing each of those projects (Itaipu and Corpus), it permitted there a concept of compatibility of a whole system that benefits us all equally and does not harm anyone in particular."

One can understand, therefore, why President Videla, who approves the regionalization of the Latin American system--having justified the existence and purposes of the Andean Pact--should consider Brazil and Argentina countries that, especially when joined in close alliance, constitute a regional system of decisive importance. Consequently, he proposes the intensification of relations between the two countries, broadening and intensifying economic exchange and the exchange of information. And, let us agree, a strong Brazilian-Argentine alliance would be a central pillar in Latin America which, starting in the Caribbean, is experiencing attempts at destabilization and continues to face the lack of understanding when not ignorance of the United States. Furthermore, Videla's position in international affairs, his concept, is very similar to the policy of the administration of Castello Branco and Leitao da Cunha, who advocated our solidarity with the West and particularly with the United States when it is a case of facing the dangers that come from the East and from extracontinental powers, or rather, superpowers. But they stressed the need to defend national interests, both economic and commercial, even when they clash with those of the big Western powers. The way Videla defined the relationship between Argentina and the Soviet Union may be considered classic.

The fact that Argentine Foreign Minister Carlos Washington Pastor felt obliged to rectify, modify, or mitigate the scope of his interview, proposing a formal alliance between Brazil and Argentina, extending even to the military level, cannot hide the intentions the Argentines nurture and the stamp they intend to imprint on the relationship between the two countries. Videla's Argentina, very realistically and even pessimistically, judging the world and Latin American situations is prepared to and even desirious of creating a permanent system of consultation between Buenos Aires and Brasilia, a veritable, alliance, an alliance for all purposes, not only for economic and political purposes. Although Pastor rectified his interview -- in this also, heeding the sensitivity of the Brazilian Government, which maintains its line of "ecumenical pragmatism," --there is no doubt that his government is very much aware of the danger represented by the situation in the Caribbean area and would be inclined to suggest a total alliance with Brazil because the time may come when the Marxist forces will not be stopped in this continent except by the union of the two countries.

President Videla contented himself with referring in very warm terms to the friendship regained with Brazil. But if, in view of the omissions, the failures and the insensitivity of the United States, the most clear-thinking Europeans are thinking of the need for self-defense, so too do the two biggest powers in Latin America have sufficient reason to take the defense of their political integrity and traditional ideology into their own hands.

Consultation Agreement

Sao Paulo FOLHA DE SAO PAULO in Portuguese 4 May 80 p 2

[Article by Luiz Alberto Bahia: "Mutual Consultation"]

[Text] The formalization of a mutual consultation agreement between Brazil and Argentina on the occasion of the visit of President Figueiredo to that republic would be received with satisfaction by all neighboring countries. The system of informal consultation has already been operating in a quite efficient manner, following the thawing of diplomatic relations after the passions that hampered the solution of pending issues such as Itaipu and Corpus were overcome.

Those passions should not return, considering the opening of paths of cooperation in the nuclear area, in which the validity of formal mutual consultation does not have to be underscored. In that critical area, the formalization of mutual consultation introduces a decisive factor of reciprocal trust.

It should be noted that formalization would not indicate any development toward special relations in the hemisphere between Brazil and Argentina. It is the nonformalization of the existing informal mutual consultation that would characterize a relationship not in harmony with the one that was established with the Andean Group. Brazil formalized mutual consultations with that group, therefore, a similar agreement with the Argentine Republic would be a natural extension of that policy.

That would dispel any shadow cast by the better understanding between Brazil and Buenos Aires over countries with reservations in the face of Brazilian diplomatic ecleticism and the rapprochement between two powerful military regimes. As a matter of fact, it is better that the withdrawal of American power in the Plate subregion does not give rise to disputes aimed at the hegemonic occupation of the vacuum left by the withdrawal of the formerly undisputed influence.

The power vacuum will have to be filled because politics, like nature, abhors a vacuum. The filling of that vacuum by Brazil and the Argentine Republic, done in a joint manner, with reciprocity and harmony, will bring positive consequences in the future. In time it will become possible to recognize the merits of that joint operation independent of foresight of the diplomatic vision of the military of both countries.

The diplomatic operation of filling a power vacuum can occur without any exclusive meaning; the central idea of multilateral relations with the neighboring countries always allays and moderates any disproportionate emphasis placed on bilateral level in reality to implement diplomacy of an encompassing, and not exclusive, multilateral nature.

Thus, the united filling of the power vacuum would not be adopting any anti-American commitment. It would be the necessary consequence of the shifting of metropolitan and regional centers. In this case, the united occupation of the power vacuum will prevent the generation of two conflicting regional centers and will deter the penetration of extracontinental influences which would bring their rivalries with them to the southern part of the hemisphere. That part of the world can do without the importation of ideological conflicts of the Sino-Soviet type.

At the same time, care must be taken not to confine the operational unity of the occupation of the vacuum to the level of ideological-military solidarity Ideological-military solidarity has bounds to overreach on the level of diplomatic and economic relations. That is, that solidarity will always need to develop other deeper motivations and in a democratic direction. Solidarity between elites must gain the dimension of deeper understandings between the two political societies with headquarters in Brasilia and Buenos Aires.

From the above speculation about the formalization of a mutual consultation agreement, one may deduce the great political importance of the visit of President Figueiredo to the Argentine Republic. It is the end of a historical cycle marked by the regional presence of a metropolitan center in the Northern Hemisphere,a chapter followed by a brief period of bipolarized hegemonic aspirations. The visit will probably mark the point of departure for bilateral and multilateral united actions.

5711
CSO: 5100

BRIEFS

NUCLEBRAS PERSONNEL TO POCOS--According to rumors circulating in this city, the Brazilian Nuclear Corporation (NUCLEBRAS) is going to transfer a large part of its administrative employees, technicians and engineers from its units in Rio de Janeiro to Pocos de Caldas. The measure would not be immediate but had already been decided upon long before the recent mass dismissals in the company, which released over 400 employees, occured. According to reports from some of the dismissed engineers, 1 week before the reduction in force was decided upon, NUCLEBRAS hired three engineers. [Text] [Sao Paulo O ESTADO DE SAO PAULO in Portuguese 24 Apr 80 p 30] 8711

NUCLEN EXDIRECTOR DISMISSED--Rio--The former director of NUCLEBRAS Engineering (NUCLEN), Joaquim de Carvalho, who has been working for a year in an agency of the Rio state government was dismissed 3 days ago by NUCLEBRAS president Paulo Nogueira Batista. The action was interpreted by experts in the area as another indication of the arbitrariness and chaos prevailing in the company administration. Joaquim de Carvalho occupied the post of director of NUCLEN from the beginning of 1976 until the end of 1978, when he requested his resignation from the position, which was granted in March 1979. He was then requisitioned to work in a public agency but continued to be connected with NUCLEBRAS, without cost to the company. The report was not well received in NUCLEBRAS because in addition to being unethical, the action had characteristics of personal revenge. Joaquim de Carvalho is the author of the book "Energia e Meio Ambiente" [Energy and the Environment] published in April. [Text] [Sao Paulo FOLHA DE SAO PAULO in Portuguese 13 Apr 80 p 39] 8711

NUCLEAR EQUIPMENT FACTORY DEDICATED--President Figueiredo has dedicated in Itaguai, Rio de Janeiro State, a Brazilian Nuclear Corporation (NUCLEBRAS) heavy equipment factory. This plant is part of the first stage of the Brazilian-FRG nuclear agreement. According to official estimates, the total cost of this factory will reach $230 million. [Text] [PY090342 Porto Alegre Radio Guaiba in Portuguese 0200 GMT 9 May 80]

CSO: 5100

BRIEFS

JOHANNESBURG URANIUM PRODUCTION FIGURES--The South African Atomic Energy Board says South Africa will be able to produce about 11,000 tons of uranium a year by the mid-eighties, if the demand rises. The board says in its annual report tabled in Parliament that South Africa should be able to maintain an annual production of at least 11,000 tons of uranium well into the next century. Last year, South Africa's estimated uranium production totalled 4,782 tons, 21 percent more than in 1978. [Text] [LD091642 Johannesburg International Service in English 1500 GMT 9 May 80]

CSO: 5100

INTEREST GROWS IN STUDY OF THORIUM CYCLE

Frankfurt/Main FRANKFURTER RUNDSCHAU in German 5 May 80 p 21

[Article by Dietrich Zimmermann: "Uranium Can Be 'Bred' From Thorium Too"]

[Text] In 1979, when a contract was signed between the Juelich Nuclear Research Institute and the Brazilian Nuclear Energy Agency "Nuclebras" for "utilization of thorium in pressurized water reactors," besides the signatories and a few specialists, hardly anybody took any notice of it. This was certainly unjustified, since the research activities which were decided by virtue of this contract would be apt to provide a totally new direction to the discussion on the need and use of nuclear energy. For many years now, prominent nuclear physicists, such as Edward Teller, have been pointing out the advantages offered by thorium as nuclear fuel as compared with uranium.

One of the objections to the introduction of nuclear energy systems is that stocks of uranium on the Earth are much too small to make the development and application of this costly and dangerous technology worthwhile. Indeed with an overtaxed construction of light water reactors there could already be a shortage in uranium supplies in 50 years.

This holds good particularly because these reactors utilize only a percentage of the uranium. Therefore those in favor of using nuclear energy also promote the fastest possible development of the fast breeders. The latter will produce from the uranium 238 occurring abundantly in natural uranium so much of the plutonium suitable for use as nuclear fuel, that the uranium supplies would last 50 times longer, therefore at least 2,000, and possibly 7,500 years.

But the fast breeder is raising both technical and political difficulties for its creators. In this situation, thorium may offer a way out. For a nuclear fuel may be produced by neutron bombardment from this heavy, soft shiny white metal. When a thorium atom captures a neutron, its atomic weight increases from 232 to 233. But thorium 233 is radioactive, and is converted in minutes into the likewise radioactive protectinium 233, which further converts into uranium 233, the desired nuclear fuel.

The latter must therefore be bred. To this end, unlike the uranium-plutonium breeding process, slow thermal neutrons are needed. But the slow neutron technology is well known from the light water reactor. Therefore to build a thorium-uranium breeder, no essentially new discoveries, nor radically new constructions are needed. Furthermore, important preliminary studies have already been conducted for a thorium technology, especially in the Juelich Nuclear Research Center in connection with the development of the high temperature reactor, in which the thorium breeding process plays a fundamental role.

Today we are sure of our ability to convert thorium into the nuclear fuel uranium 233. Of course, to set this process in motion, we need first breeder reactors, which are operated with uranium 235 commonly used in light water reactors. The breeding process can be continued only when a certain minimum amount of uranium 233 has been produced. Studies have shown that there is sufficient uranium 235 in the world for the required first breeder reactors.

There is also no lack of thorium. It is probably four to five times more abundant in the Earth's crust than uranium. For example, there are enormous amounts of monazite sand with high thorium content on the coasts of Brazil and southwest India, other minerals containing thorium may be found in Norway, Indonesia, Malaysia, Madagascar, Nigeria and also in the United States. Since thorium can be converted to a great extent in to the nuclear fuel uranium 233, there is an energy reserve, which could last up to the next ice age, as had once been stated by Edward Teller. Moreover, there is another advantage: it is somewhat more difficult to obtain from a thorium-uranium fuel cycle material for the production of nuclear arms than from the present usual uranium-plutonium cycle.

With regard to this argument in favor of thorium, we should ask ourselves why so little has been done up to now on the international level for the development of a thorium breeder technology. There are two related reasons: On one hand, after the earlier decision in favor of the uranium-plutonium technology, the possibility of developing alternative projects was practically blocked, simply because there would not have been enough money and qualified personnel in the whole world for this purpose. Later it was found, above all in the course of the studies of the high temperature reactor in Juelich, that the reprocessing of fuel elements containing thorium raises considerable difficulties, especially material difficulties.

Meanwhile, the situation has changed, not for the least the difficulties in the development of Fast Breeders. The chances for a final breakthrough on the thorium reactor line, are not poor. From this point of view, the technical world will assign great significance to the research work referred to in the contract signed with Brazil, a country rich in throium.

9018
CSO: 5100

NUCLEAR FUSION RESEARCH GOING UNDER NATIONAL DEFENSE

Paris LE MONDE in French 8 Apr 80 p 7

[Article: "Certain Forms of Research on Nuclear Fusion Will Be Placed Under the Control of the Ministry of Defense"]

[Text] Studies and research on thermonuclear fusion by inertial confinement will henceforth be subject to control by the Ministry of Defense. In accordance with a decree issued by the prime minister, published in the JOURNAL OFFICIEL on Sunday, 6 April, all work, whether using lasers or clusters of particles [faisceaux de particules], aimed at producing nuclear fusion reactions which, uncontrolled, lead to the development of H bombs or, controlled, perhaps may lead in a few years to civilian nuclear energy plants, can only be undertaken with official authorization.

The decree provides that this measure is aimed at preventing research conducted in this area "from leading to the assembling of information, objects, documents or procedures whose exploitation would be of a nature as to be prejudicial to the national defense." Also, "any person, whether physical or created by law, preparing to undertake or to have undertaken" such work, must declare it to the Ministry of Defense. For this purpose a committee of "control of activities and research in this field" will be formed and placed under the chairmanship of the Secretariat General of the Ministry of Defense. It will include the inspector of nuclear armament and four members named by the prime minister on the respective proposals of the minister of defense, the minister of universities, the minister of industries, and the Secretariat of State for Research.

5170
CSO: 5100

OPPOSITION TO NUCLEAR POWERPLANT AT CHOOZ NOTED

Paris LE MONDE in French 29 Apr 80 p 42

[Text] Plans for building a second nuclear powerplant at Chooz (Ardennes) will be the subject of a public opinion survey conducted from 6 May to 17 June in the territory of 14 communes.

The first reactor, with a power of 300 megawatts, was put in operation at this place in 1967 for a Belgian company and EDF [French Electric Company]. This time, EDF is contemplating constructing four 1,300-megawatt reactors, the first two of which will probably be operating in 1989. The powerplant would supply 15 billion kilowatt-hours a year, while the needs of the Champagne-Ardennes region are estimated at 11 billion kilowatt-hours in 1990.

The residents of Chooz are opposed to this project. On 4 March 1979, at the time of a referendum arranged by the municipal government, they declared themselves against the powerplant by 240 votes against 133. On Friday 25 April, the municipal council asked, by 8 votes against 2 with one abstention, for a public opinion survey report and refused to have it arranged by the city administration. The Chooz councilmen believe that the inhabitants of the region will not have time to "make their comments on complicated, important reports" and that the data needed before opening the survey are "insufficient."

10,042
CSO: 5100

FRANCE

COGEMA OPPORTUNITY FOR NUCLEAR FUEL PRODUCTION

Paris L'USINE NOUVELLE in French 17 Apr 80 pp 110-111

[Article by Claude Goudier: "The 'Francization' Battle"]

[Text] The persons in charge of nuclear activities in the Pechiney-Ugine-Kuhlmann (PUK) group are pleased. They have won their bet: to produce, under good financial and industrial conditions, fuel elements to be used to supply the some 45 900-megawatt to 1,300-megawatt light-water nuclear powerplants being built at present by the French Electric Company.

The instrument for this successful achievement is the French-Belgian Fuel-element Manufacturing Company (FBFC), whose capital is held by the EUROFUEL holding company, in which PUK is a majority participant. The other shareholders are the American Westinghouse Company, which has granted its license, Creusot-Loire, FRAMATOME [Franco-American Atomic Construction Company] and the Belgian Metallurgy and Mechanical Engineering company (MMN).

The FBFC, which has had a shop at Dessel, in Belgium, since 1973, decided, in view of the vastness of the French nuclear program, to build a large plant at Romans, in Drome Department, on a site where fuel elements were already being produced for experimental reactors. The Romans plant, built in 1977 at a cost of 170 million francs, has just reached its normal operating rate (330 metric tons of uranium content a year) and the combined production capacity of the two FBFC establishments is now 800 metric tons, or the equivalent of ten 900-megawatt reactor cores!

Large-scale Political-Industrial Maneuvers Have Begun

In spite of a long past in the nuclear industry, this was, however, a new venture for PUK. In fact, the manufacture of fuel elements is a very sophisticated operation, ranging from the metallury of high-range alloys to the complex chemistry of uranium, including precision mechanical engineering. An assembly of elements is 4 meters long. It consists of 264 zirconium tubes, or rods, containing the pellets of uranium oxide enriched to about 3 percent, held in a very complicated metal framework.

This assembly is designed to perform a triple role: to promote the nuclear reaction, to remove the heat released by this reaction, to ensure confinement of the fission products. A 900-megawatt reactor core consists of 157 assemblies, or 72.5 metric tons of uranium in the form of 11 million small pellets. Let us note that a metric ton of this fuel produces as many kilowatt-hours as 63,000 metric tons of oil.

Now that the production of assemblies for 900-megawatt plants is well underway, the FBFC is tackling the fuel elements for the 1,300-megawatt reactors, the first of which, located at Paluel, on the coast of Normandy, is to be placed in operation in 1982. Because its design is somewhat different from the 900-megawatt reactor, prototype tests of the 1,300-megawatt reactor are in progress at the CEA [Atomic Energy Commission] center, located at Cadarache.

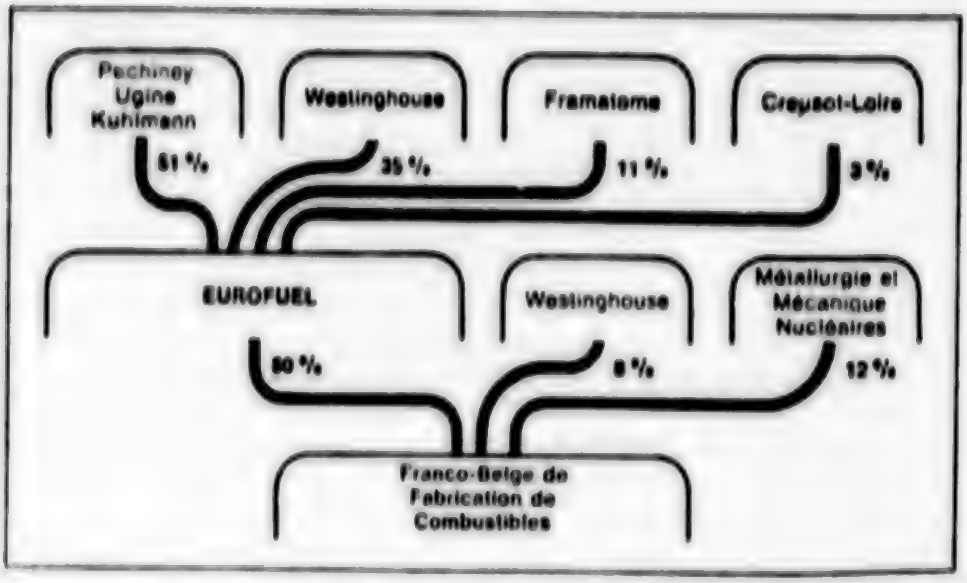
But, behind these men and women dressed and gloved in white working in this plant in somewhat mysterious surroundings, large-scale political-industrial maneuvers have begun. They concern "Francization" of the Westinghouse license that we have for building that kind of powerplant and which is about to expire.

For construction of the boiler, whose license expires in 1982, talks between FRAMATOME (the license-holder), the CEA and the American partner are well underway, it seems. But for the fuel elements, whose license runs out in 1983, talks are only beginning. Moreover, they are complicated, because there is a number of negotiators: PUK, FRAMATOME, Creusot-Loire, Westinghouse, CEA.

With regard to fuel elements, as well as the boiler, the confessed aim is to give up the license and to proceed with as much Francization as possible. This has been going on since 1975, when the CEA entered into the capital of FRAMATOME, leaving only a minor role for Westinghouse, then. The vehicle for this Francization is the CEA, whose competence is certain. The Phenix breeder reactor is a brilliant demonstration of this.

The CEA is not only going to seek to impose its views for the boiler, but it might also reserve a surprise in the field of the fuel element through its industrial subsidiary, COGEMA [expansion unknown]. In fact, this last-mentioned enterprise covers the whole uranium cycle, from the mine to reprocessing waste products. Nevertheless, one link is missing: fuel for light water.

The negotiations with Westinghouse will, therefore, probably be an opportunity for COEGMA to assert itself in this field by entering into EUROFUEL, for examples, and FBFC in place of Westinghouse, or by establishing -- why not? -- its own production facilities.



BCF and EUROFUEL participations.
Key: 1. Franco-American Atomic Construction Company;
2. Metallurgy and Mechanical Engineering [Company];
3. Franco-Belgian Fuel-element Manufacturing Company.

10,042
CSO: 5100

FRANCE

NUCLEAR POWERPLANT APPROVED IN AVOINE

Paris LE MONDE in French 30 Apr 80 p 38

[Article by Christian Rossignol]

[Text] Tours.--"Yes to the future, yes to nuclear power." This slogan is the saying of a sticker. Extremely rare slogan: the EDF officials who offer you this sticker advise you, however, not to display it on your car. A windshield is so easily shattered.

Avoine is practically the only place where cars displaying the provocative sticker can circulate without risk: one is not anti-nuclear in Avoine. In fact, the people are all for it.

Avoine is a small town of 1300 inhabitants, located several hundred meters from the Loire, half-distance between Tours and Saumur. A community that numbered only 600 people 20 years ago, and whose activities were divided between the vineyards and the cultivating of asparagus. Only four farmers remain, all very aged. The others have changed their employment, such as the shoeing smith who has become a locksmith. All work directly or indirectly with the enormous installation that has been constantly growing, since 1958, on the river bank: the nuclear power plant of Chinon.

Chinon I was the first French reactor supplying electricity to the network: the round-shaped "battery" covered with a metal casing, started a chain reaction in 1963 with a strength of 70 megawatts. At the time, the anti-nuclear people, misinformed, were too few in number to be heard. The inhabitants of Avoine never knew if there were any reasons to be alarmed... Their knowledge of radioactivity consists only of what the technicians have always told them when they come, every 4 months, to take a sample of four liters of milk for analysis: "Nothing to report."

Thus, no alarm. On the other hand, one finds a constant solicitude on the part of the EDF public relations personnel: visits to the work site, invitations and trips to all other French nuclear power plants for the leading citizens; purchase of property at such interesting prices that no expropriation is necessary; and especially, 2 years after the start-up, the arrival of the first millions--heavy--of the patent into the community budget. Avoine, threatened with a slow death like many other rural communities, has become in a few years the "Kuwait of the Indre-and-Loire."

What happens when a community of 1300 inhabitants receives more than one billion "centimes" per year? One invests, one equips. In downtown Avoine, the church, the city hall, several stores where, notes an elderly lady, prices are higher than at Chinon--there are no visible changes. However, one notices the opulence of the town on the outskirts: a college and schools for 1000 children; tennis courts; football fields, a gymnasium for all kinds of sports, "no current models" emphasizes Mr Vignaud, the mayor of Avoine.

Avoine has recruited an entertainment person to plan shows for the native inhabitants as well as for the 85 families employed by the EDF and the on-site workers.

Mr Vignaud, also employed by the power plant, refused to talk about the "fortune" of Avoine. The equipment of the community, he explains is in no way luxurious. It only meets the needs created by the arrival of new inhabitants in the town, as well as the surrounding communities who to-date, had not been receiving a cent from the EDF.

Chinon I was definitely brought to a halt in 1973 and the large sphere which "encircles" the postal flame of Avoine will one day be turned into a nuclear museum. Two other old reactors--Chinon II with 200 megawatts and Chinon III with 480 megawatts--are presently operational, while the enormous task of building two other new reactors is being completed. Each of these new reactors will produce 900 megawatts in 1982. A public investigation concerning two additional sections has just been completed. Six reactors totaling 4280 megawatts on the site of Avoine, and here begins the uneasiness: in January, the municipal council decided to consult the population on the opportunity of the latter extension. Mr Vignaud had not been impressed last summer by the only anti-nuclear demonstration that Avoine has know, but feared that his community might not be able to integrate the new inhabitants that the work site would bring in. The inhabitants of Avoine have dissipated his worry: the majority voted "yes" for the extension.

9592
CSO: 5100

LIGNITE POWER PLANTS EMIT RADIOACTIVITY

Athens TA NEA in Greek 27 Mar 80 p 9

[Text] Salonica--Radioactivity in large amounts is present in the atmosphere, as a result of emissions from the thermal electric-power plants in Greece which make use of lignites as their fuel.

The emitted radioactivity is of about the same magnitude as that which escapes from a nuclear power plant.

This significant finding was made by those in charge of the atomic and nuclear physics laboratory at the University of Salonica, following measurements made over more than 2 years at the Ptolemais-Kardia, Aleverion, and Megalopolis power plants.

The scientific findings were announced within the framework of the recent International Congress on Protection Against Radioactivity which took place in Jerusalem, and they caused a notable sensation and intensive speculation among the circles of preeminent nuclear scientists who had gathered there.

Radioactive Cement

This fact is of particular significance, not only on account of the escape of quantities of radioactivity which are gradually accumulating in the atmosphere, but also because of the impending development of an industrial production of cement through using lignite ash as a raw material, which means that this product will be slightly radioactive, and hence that from now on particular care should be taken with regard to its subsequent use.

As for the dangers which result from the emission of radioactivity, Stefanos Kharalambous, professor of nuclear physics at the Salonica Aristoteleion University and head of the laboratory, is guarded about discussing these for the present, since on the one hand no immediate consequences for public health are looming, and on the other hand because the investigations and studies are still going on.

Mr Kharalambous stated to TA NEA that at the nuclear physics laboratory a systematic investigation is being conducted of the radioactivity of Greek lignites and their ash, among other things, with his co-researcher in this effort being K. Papastefanou. All Greek lignites contain radioactive substances of the uranium series. Many Greek lignites have a radioactivity amounting to concentrations on the order of 25 picocuries per gram of lignite. This concentration is fairly high. And the upshot of this is that the thermal electric-power plants which burn lignites are emitting to the atmosphere large quantities of radioactivity which amount to 40 curies per year from each one of these plants. This radioactivity is escaping not only as fly-ash, but also and above all (95 percent) in a finely divided form down to gaseous forms.

What are the dangers for the residents of the area which surrounds the thermal plants?

Double the Amount of Radium

The professor said that as a physicist who has concerned himself with the biological consequences of radiations, he has a full awareness of the dangers which arise from such radiations, and he completely embraces the thesis that any exposure to radioactive substances should be avoided.

"Our attention and our investigations have concentrated up to now on the overall burdening of the atmosphere with radioactive substances from the burning of lignite. In the last 50 years, our technological culture has doubled the amount of radium in the atmosphere. The calculations of Mr Papastefanou indicate that in the next 20 years--with the petroleum crisis and the continually increasing use of lignites--the radium in the atmosphere will increase by an order of magnitude.

"On the basis of the proposals which were made at the Jerusalem congress, the maximum permissible radium burden in the atmosphere will be lowered by an order of magnitude. The accepted maximum permissible concentration (old value) is 10^{-11} microcuries per cubic centimeter.

"Our initial estimates are that the burden from the radioactivity emitted by the thermal plants is much less than the maximum permissible concentration even at the presumably hottest spots--that is, it is on the order of 10^{-14} microcuries per cubic centimeter, and therefore no problem exists that this poses a danger.

"The continuously emitted activity from a thermal plant which burns contaminated lignite is of the same order of magnitude as that which escapes from a nuclear plant of the same power. With the difference that in the nuclear plant there is a potential danger of an explosion, which makes it potentially much more of a problem. Of course, recalling my principle--the principle of radiation protection, that every exposure to radioactive substances ought to be avoided--indicates that vigilance by the officials and further research are called for.

"Our planning provides for a continuation of investigations on this subject and careful field measurements on the burdening of the atmosphere by radioactive substances near thermal power plants."

Is this the first time that your results have been announced?

"In this case as well, scientific ethics have been complied with--that is, the results were published in a distinguished international periodical, and two articles have also been sent and are in the process of being published in a Greek scientific periodical. At the Jerusalem congress on 14 March, we presented this topic. The conclusions can be summarized in the statement that: Both the matter of the gases and ash emitted from thermal plants and also the use of fly-ash as a substitute for cement in concrete should be examined with care.

"Many investigators have proposed that so-called fly-ash, which is produced in amounts exceeding 1,000 tons a day by each thermal plant, should be used as a substitute for cement in concrete, and there is already planning on building a plant for producing cement from fly-ash at Ptolemais.

"Such cement is certainly much cheaper, but on the other hand it will be slightly radioactive. It should be used only for the construction of large works in open areas--for example, jetties, dams, bridges, road projects, and so forth--and its use for the construction of dwellings should be avoided."

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